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Jackson Wastewater Treatment System Town of Jackson, Wyoming

James Montgomery, Inc., Boise, ID

Prepared for

Environmental Protection Agency, Denver, CO. Region VIII

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FINAL ENVIRONMENTAL IMPACT STATEMENT JACKSON WASTEWATER TREATMENT SYSTEM TOWN OF JACKSON, WYOMING

FEBRUARY 1979

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VIII, DENVER, COLORADO 80203

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16. ABSTRACT

This is a final environmental impact statement (EIS) for proposed construction of additional wastewater treatment facilities at Jackson Hole, within Teton County, Wyoming. The U.S. Environmental Protection Agency (EPA), Region VIII, Denver, under the authority of Section 201 of the Federal WAter Pollution Control Act Amendments of 1972, is authorized to grant 75 percent matching funds for construction costs of designated wastewater treatment facilities. Sewage discharges as a result of area growth and development together with non-point source runoff have degraded the water quality of Flat Creek. Therefor, additional sewage treatment facilities are needed to meet water quality goals.

The recommended action is to construct aerated lagoons followed by rapid infiltration basins 4 miles downstream of the existing plant. The new facility will enhance development in the undeveloped South Park area. Ground water monitoring will be required.

17. KEY WORDS AND DOCUMENT ANALYSIS

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FINAL ENVIRONMENTAL IMPACT STATEMENT
JACKSON WASTEWATER TREATMENT SYSTEM
TOWN OF JACKSON, WYOMING

Prepared By

U.S. Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80295

Approved by: Alan Merson
Alan Merson
Regional Administrator

Date: FEBRUARY 12, 1979

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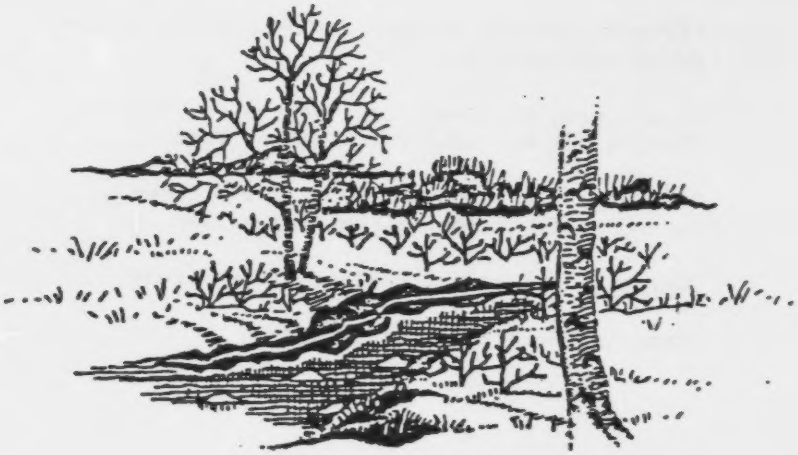

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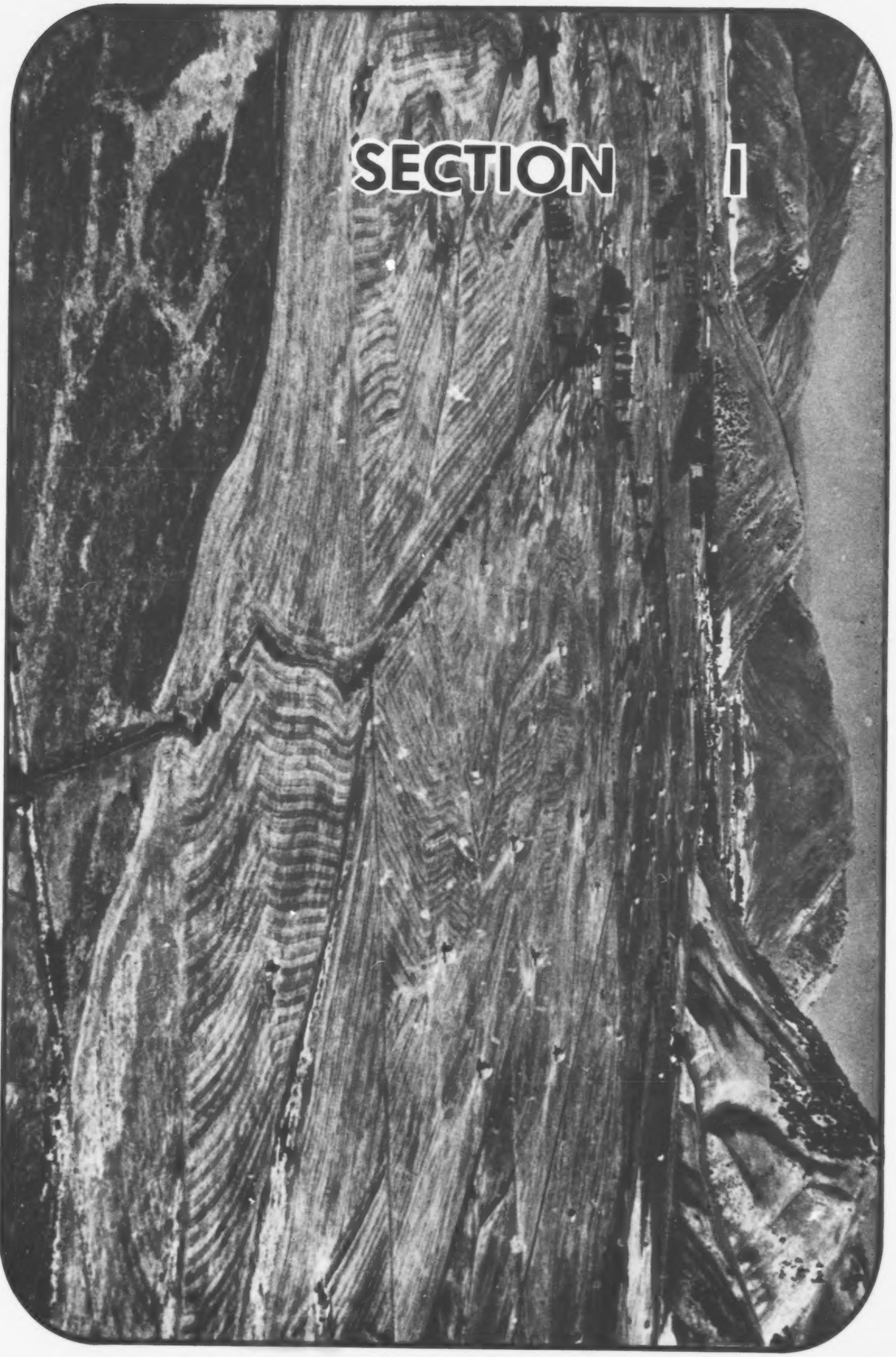
SECTION I



SECTION 1

FINAL ENVIRONMENTAL IMPACT STATEMENT

JACKSON WASTEWATER TREATMENT SYSTEM
TOWN OF JACKSON, WYOMING

( ) Draft EIS
(X) Final EIS

Prepared by the U.S. Environmental Protection Agency, Rocky Mountain Prairie Region, Region VIII, Denver, Colorado, with assistance from James M. Montgomery, Consulting Engineers, Inc., Boise, Idaho.

A. Type of Action: (X) Administrative
( ) Legislative

B. Brief Description of the Proposal

The Region VIII Administrator of the U.S. Environmental Protection Agency (EPA) intends to approve Federal matching funds for wastewater treatment facilities for the Town of Jackson, Wyoming, through Title II of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), as amended in the Clean Water Act of 1977 (PL 95-217). Eligibility requirements and procedures necessary to qualify for a grant are set forth in 40 CFR, Part 35, Construction Grants for Waste Treatment Works. The Federal share shall be 75 percent of the total cost found to be eligible, with a portion of the facility being eligible for 85 percent Federal Assistance as "innovative or alternative wastewater treatment processes and techniques" referred to in Section 201(g)(5) of PL 95-217.

The purpose of the Final Environmental Impact Statement (EIS) is to present an evalution of the primary and secondary environmental impacts of those wastewater treatment alternatives to be analyzed as part of the completion of the Jackson, Wyoming 201 Wastewater Facilities Plan Update, completed by C.E. Maguire, Inc., in October, 1978. These alternatives include alternate interceptor rights-of-way, alternate plant site locations, and alternate treatment techniques which include lagoons and an oxidation ditch followed by either rapid infiltration basins or discharge to the Snake River or Flat Creek. This additional evaluation was necessitated by an EPA decision not to fund a previous alternative recommended in the Facilities Plan, Jackson, Wyoming, 1974 Nelson, Haley

Patterson & Quirk, Inc. (now C.E. Maguire, Inc.). This decision was based on an analysis developed in the Draft Environmental Impact Statement Jackson Wastewater Treatment System, Town of Jackson, Wyoming, 1977, prepared by EPA with assistance from James M. Montgomery, Consulting Engineers, Inc. The analysis concluded that construction of an aerated stabilization pond on the South Park Elk Feedground would pose legal difficulties in land acquisition from the State of Wyoming, would adversely affect the elk herd, was located in the 100-year floodplain, would conflict with goals established by the Snake River Wild and Scenic River Study, and ultimately result in widespread development of the South Park area in direct conflict with the goals of the proposed master plan.

The Final Environmental Impact Statement also includes responses to comments on the draft EIS.

C. Lead Agency, Project Officer Contact and Address

The U.S. Environmental Protection Agency is the lead agency in a joint effort with the Town of Jackson, Wyoming, and Teton County, Wyoming to prepare the final EIS. Mr. Weston Wilson, U.S. Environmental Protection Agency, Region VIII, is the designated Project Officer for the project. Requests for free copies of the document should be addressed to:

Mr. Weston Wilson, Project Officer
U.S. Environmental Protection Agency
Rocky Mountain-Prairie Region
Suite 900, 1860 Lincoln Street
Denver, Colorado 80295

D. Abstract of the Proposed Action

The proposed alternative would involve construction of an aerated lagoon treatment system with rapid infiltration as a means of final effluent disposal. The lagoon/infiltration system would be located on approximately 50 acres of land at the Lower Bench site. The proposed alignment for the interceptor route would generally parallel Flat Creek southerly for about four miles, to the Lower Bench Site (approximately 22,000 feet). High groundwater conditions at the Lower Bench Site (distance to groundwater ranges from 0.6 to 6.2 feet below the surface) would dictate that embankment material for the lagoons and infiltration beds be excavated from adjacent private land on the opposite side of Flat Creek. Due to these conditions, EPA has determined that additional groundwater monitoring will be performed during May and June of 1979 to better define flow rates and direction. The present land use at the lagoon site and along the interceptor route is pasture and farmland.

E. Summary of Critical Issues

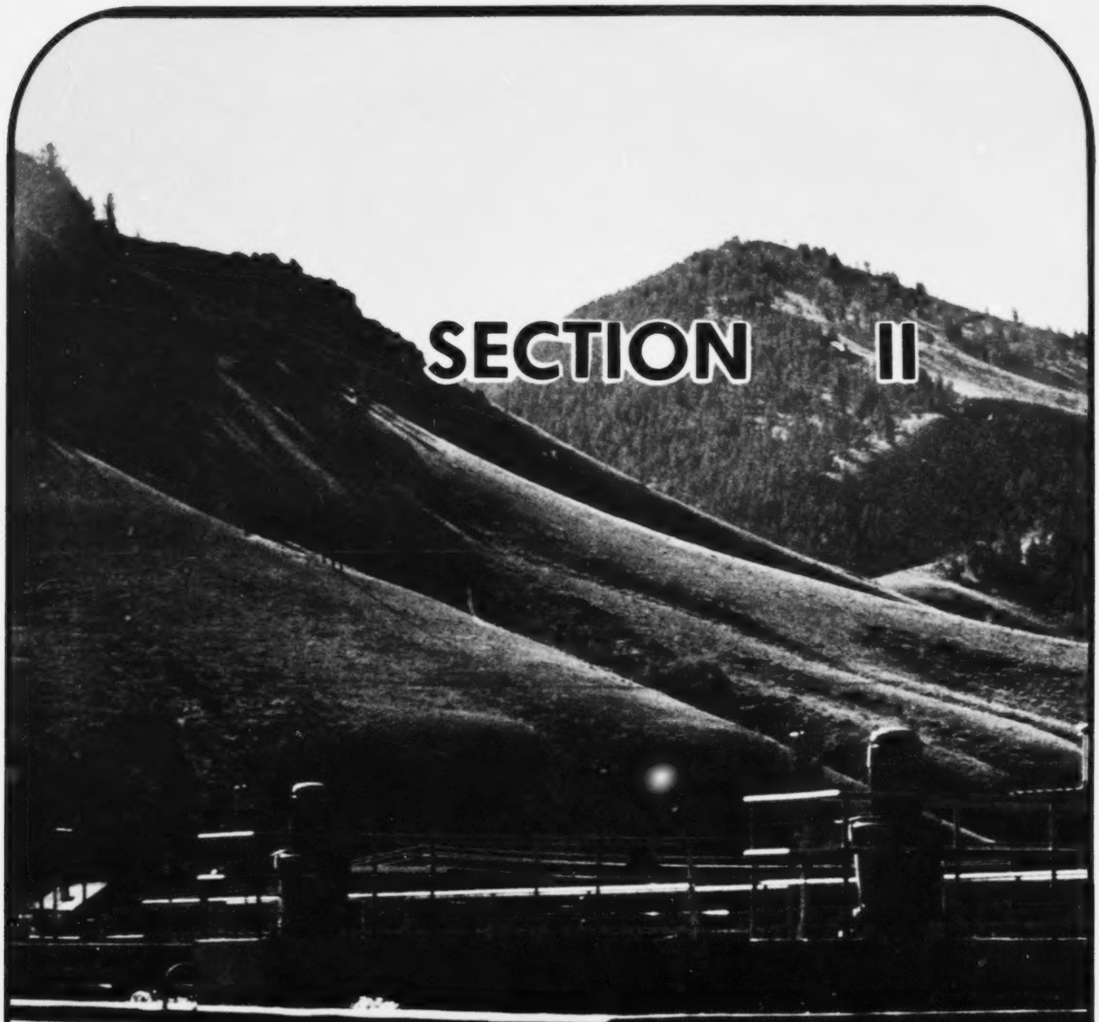
Several key issues are involved in the implementation of the proposed lagoon/rapid infiltration wastewater management alternative at the Lower Bench Site. These issues range from potential surface and groundwater degradation associated with the operation of an aerated lagoon/rapid infiltration system at the site, to conflicting State statutues defining interjurisdictional authorities and the effects of a subsequent sewer tap-in agreement between EPA, the Town of Jackson, and Teton County on the local growth rate and development patterns. The critical issues are summarized as follows:

- Some contamination of surface and groundwater during construction of the South Park Interceptor and proposed wastewater treatment facilities due to increased sedimentation and erosion.
- Potential for increased nutrient levels in the groundwater and surface water (Snake River and Flat Creek) systems downgradient from the infiltration bed locations.
- Adverse visual and aesthetic impacts associated with a lagoon/infiltration system which would occupy between 40 and 50 acres of rural undeveloped land at the Lower Bench Site.
- Attitudes of adjacent land owners concerning the proposed location of the system.
- Conflicting State statutes concerning jurisdictional authorities of towns, cities, and counties as related to property acquisition for waste management facilities and planning and zoning in "areas of impact."
- Potential impacts of developing priorities for an annual number of out-of-city taps per year by Teton County on the County's Comprehensive Planned Implementation Program.
- Corresponding growth rate and development trends associated with the tap-in policy.
- Potential for substantial public service and facilities investment demands in the South Park area (i.e., schools, transportation, police and fire protection, storm drainage) facilitated by central sewer availability.
- Long-term impacts of suburban and urban level development in the South Park area on local water quality and fish and wildlife (primarily elk) populations.

- Life expectancy of the proposed facilities in relationship to the tap-in policy and its impact on the Teton County Comprehensive Plan and Implementation Program.

These critical issues and/or areas of controversy, along with major conclusions and issues to be resolved are discusssed in more detail in later sections of this document. The Summary Final Environmental Impact Statement, Jackson Wastewater Treatment System, Town of Jackson, Wyoming also discusses these issues. This summary was prepared by EPA as a separate document to encourage public review and comment.

SECTION II



JACKSON'S EXISTING WASTEWATER TREATMENT FACILITY

SECTION II. PURPOSE AND NEED
FOR THE PROPOSED ACTION

A. TOWN OF JACKSON WASTEWATER NEEDS

1. Overview of Existing System Flows

The Town of Jackson municipal sewage treatment plant is the largest wastewater facility in Teton County. The existing plant is located south of the Town, and was constructed in 1969, for a peak design population of 5,000. Excess summer infiltration, the addition of new service areas, and the popularity of Jackson as a vacation resort resulted in the facility exceeding design capacity in 1971. It is estimated that the plant serves as many as 13,800 residents and seasonal visitors during the summer months. Subsequent modifications to the plant (installation of sludge bed modifications and a mechanical aerator) as a result of a 1973 study did not result in any significant improvement to the operation or treatment efficiency of the system. A Step 1 201 facilities plan developed by NHPQ in 1974 resulted in two significant actions which included an EPA grant to study inflow/ infiltration problems of the collection system (an estimated 850,000 gpd was attributed to infiltration), and the Town Council's rejection of the consulting engineer's recommended alternative. The draft EIS prepared for the project by EPA, with assistance from James M. Montgomery, Consulting Engineers, Inc., in 1977 evaluated six potential sewage treatment plant sites. As a result of the findings of the study and public meetings held on the draft EIS, the decision was made by EPA not to fund the proposed project (an aerated stabilization pond in the South Park Elk Feedground.

The plant is currently treating approximately 0.93 million gallons per day (mgd). The facility serves about 95 percent of the developed land within the Town limits, including restaurants, motels, schools, mixed commercial, condominiums, trailers, single family residential and a hospital. There are no major wastewater producing industries connected to the system.

The Jackson, Wyoming 201 Wastewater Facilities Plan Update, (1978) identified a 1995 design flow for an aerated lagoon/rapid infiltration system of 2.65 mgd plus the capacity to treat an estimated 0.85 mgd of uncorrected infiltration. The total hydraulic capacity for the treatment facilities would be 3.5 mgd.

2. Other Point and Nonpoint Wastewater Contributors in the Study Area

A number of point and nonpoint wastewater sources have also been identified by the Teton County 208 Water Quality Management Program (1977) as potentially contributing to local water quality problems in the study area. Existing water quality conditions in the Jackson study area are discussed in detail in Section 3 of this document. Potential pollution sources are summarized as follows:

- Town of Jackson existing municipal sewage treatment plant.
- Stormwater runoff from the Town of Jackson and other high density growth areas in the County.
- Irrigation diversion and return flows from the Gros Ventre River.
- Numerous individual wastewater treatment systems (approximately 1/3 of the Teton County resident population is served by these systems) which currently serve the rural and low density developments in the County.
- Numerous grazing and agricultural activities throughout the County.
- Natural and man-induced soil erosion.

3. Water Quality Goals and Objectives

The primary objective of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) as amended by the Clean Water Act of 1977 Pl 95-217) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Consistent with this objective, the Act provides where possible for the attainment of water suitable for swimming and fishing by 1983. Section 201 of the act provides funding for municipalities to plan, design and construct wastewater facilities to achieve the objectives of the Act. Section 208 provides further federal assistance to develop areawide waste treatment management plans to solve local water quality problems including both point and nonpoint pollution sources.

In 1974, following a series of wastewater planning and design studies and projects, the Town of Jackson received a Section 201 facilities planning grant from the EPA to prepare a cost-effective, environmentally sound program for the Town of Jackson and surrounding area. The primary objective of the facilities planning effort, as identified in the Facilities Plan, Town of Jackson, Wyoming (1974, was the "fulfillment of effluent limitations accomplished through secondary treatment followed by disinfection." Early in 1975, Teton County received a Section 208 water quality planning grant to prepare a comprehensive water quality management program for the County. The goals and objectives outlined in the plan were to identify the best technical and management plan alternatives necessary to meet the goals and objectives of PL 92-500; and to meet instream water quality standards and wastewater treatment requirements established by the Wyoming Department of Environmental Quality. Collectively, these goals and objectives form the basis for the Town of Jackson 201 facilities planning effort.

B. HISTORY OF THE PROJECT, AND DECISION MAKING PROCESS

The history of the decision making process for the EIS, Town of Jackson, Wyoming, wastewater treatment system, began in March, 1974, when EPA approved a grant to the Town authorizing the development of a wastewater facilities plan for a new or expanded sewage treatment plant. The firm of Nelson, Haley, Patterson and Quirk, Inc., (NHPQ) was retained by the Town to develop this plan. Their initial studies indicated the need for an extensive inflow and infiltration study to analyze sewer problems. This study was subsequently authorized and funded by EPA.

In October, 1974 the facilities plan was completed by NHPQ. The plan identified considerable infiltration/inflow problems, hydraulic overloading of the existing treatment facilities, and the need for expansion of the facilities to handle increased flows due to additional resident and tourist populations. The plan recommended as the most cost-effective alternative a mechanical treatment plant at the present plant site at an approximate cost of $2.9 million. The third option involved construction of a waste stabilization lagoon 4.5 miles south of the Town, at an approximate cost of $1.8 million. The facilities plan recognized several problems for these alternatives including the fact that the location for the proposed alternative (upgrading the existing plant) was directly in the path of the Town's current growth expansion. Major consequences of the Boyle's Hill alternative included the requirement for additional high cost lift stations and pumping facilities to serve future South Park development, and complications involving discharge to the Snake River. The stabilization lagoon at South Park involved the most Game and Fish property for the lagoons, effects on elk populations (approximately 2,000 elk feed in the grounds during the winter months), and secondary growth implications of extending an interceptor into the undeveloped South Park area.

After the Town of Jackson's November, 1974 hearing on the plan, and largely due to EPA's notification to the Town that an EIS would be required if the decision were made to locate the facility in the South Park Elk Feedground, NHPQ was requested to reevaluate the comparative costs of the treatment plant at the present site versus the Elk Feedground alternative. A January 5, 1975 supplement to the facilities plan by NHPQ concluded that the total cost of upgrading the existing treatment plant was less expensive than the South Park lagoon.

On April 30, 1974, the Wyoming Department of Environmental Quality, (DEQ), issued a National Pollution Discharge Elimination System (NPDES) permit to the Town of Jackson. Provisions of the permit included the requirement that the Town submit a final wastewater facilities plan to DEQ by September 30, 1975. On November 4, 1975, following delays in submittal, the Town was issued a Notice of Violation requiring the plan in 30 days. The Town's reply to DEQ indicated that the Town Council did not concur with the recommended alternative of the Facilities Plan, and that the South Park Elk Feedground alternative had been selected by the Council. This decision was based on the following criteria:

1) Lower operation and maintenance costs of a lagoon system;
2) Ultimate unlimited service capacity of a plant located at the South Park Elk Feedground site; and

3) The Town Council's assumption that being public lands, the South Park Elk Feedground site would be available for the Town's use as the location for the selected lagoon treatment system alternative.

On January 30, 1976, following review of the facilities plan by EPA, the decision was made to prepare an EIS on the selected alternative based on anticipated public controversy and potential adverse environmental impacts associated with the South Park Elk Feedground site. On July 23, 1976, EPA contracted the firm of James M. Montgomery, Consulting Engineers, Inc., to assist the agency in preparing the EIS. A "Notice of Intent to Prepare an EIS" was issued by EPA on August 26, 1976 and mailed to all interested individuals and agencies.

As a result of the analysis developed in the draft EIS which concluded that the South Park Elk Feedground option would pose serious legal difficulties in acquiring the land in the feedground and adversely affect the elk herd; that the proposed site was located in the 100-Year floodplain; and would conflict with the goals established by the Wild and Scenic River Study; and that the proposal would "open up" the entire rural South Park area to urban/suburban level development; the decision was made by EPA not to fund the selected South Park Elk Feedground option.

During the draft EIS process, it became apparent that although the majority of the Town Council continued to support the South Park Elk Feedground alternative, several council members and a number of Teton County officials were concerned over potential growth impacts of locating the treatment facility in Lower South Park. Town Council members in opposition to the selected alternative maintained the treatment facility would become a County rather than Town of Jackson system. The County, which was involved in a Section 208 Water Quality Management Study as an element of a Comprehensive Plan and Implementation Program, did not endorse the selected alternative due to the fact that the treatment plant location and interceptor route were in direct conflict with the proposed comprehensive plan goals and policies of supporting the retention of the rural character and ranching economy of Teton County; encouraging compact urban growth with minimization of costs for public services and facilities necessary to support new development; and directing development out of areas subject to flooding and other natural hazards. In addition, at a public workshop conducted by EPA during the EIS process, a large majority of citizen participants rejected the proposal stating reasons including adverse effects of development facilitated by extending sewers into Lower South Park, reservations over lagoons as a method of treatment, and impacts on the elk herd. A majority of citizens polled preferred expansion of the existing Jackson treatment plant.

Following the decision by EPA not to fund the South Park Elk Feedground option, a majority decision was made by Jackson Town Council to locate the new sewage treatment plant at the South Park Road site. This decision was again challenged by two of the three Teton County Commissioners who indicated their opposition to the proposed location. These commissioners maintained their position that a large treatment facility at the South Park Road site would open South Park to widespread development, and conflict with the goals and policies of the proposed Teton County Comprehensive Plan and Implementation Program. Two conflicting State of Wyoming statutes concerning a town's authority to go beyond its boundaries to acquire property for liquid waste facilities and County authority to conduct planning and zoning and restrict land users outside city limits further complicated the situation.

The conflict continued through the summer of 1977. Those in opposition to the South Park site favored expanding the existing treatment plant, or construction of a new mechanical plant at Boyle's Hill contending that the South Park location constituted a "government subsidy of development." Proponents of the South Park site maintained that the valley was going to develop regardless of where the plant was located. They further noted that a central treatment and collection system was preferable to individual septic tank systems, in terms of groundwater protection and that the Comprehensive Plan and Implementation Program would control growth in the area.

In early October, 1977, the EPA Regional Administrator met with the Town's mayor and Council and the County Commissioners to discuss the impasse. After reviewing the various advantages and disadvantages of the respective sites, a proposal for limiting the rate of new tap-ins outside the Town of Jackson and the Jackson Planned Expansion District was made. Potential problems with this approach included legal implications of preparing a contract that would bind a legislative body beyond its term of office, and difficulties in obtaining easements under such a plan.

On October 25, 1977, EPA notified the Mayor of Jackson that while it preferred the alternative which included expansion of the existing treatment facilities, the agency could approve a South Park site under the following conditions developed jointly by the Town of Jackson and Teton County:

1. New taps along the proposed interceptor line outside the Town of Jackson should be approved by Teton County, or jointly by the town and county.
2. The maximum number of residential units outside the Town tapping into the line each year should be specified (allowances for an increase each year should also be considered).
3. All residential units tapping into the proposed interceptor should comply with the provisions of the Comprehensive Plan, or at least be compatible with its provisions dealing with physical environmental constraints (i.e., floodplains, steep slopes, and high groundwater).

4. The period of effect of these conditions must be specified (i.e., ten, 20, or 40 years, life of the project, or life of the interceptor).
5. The Town and County should enter into a contractual arrangement with EPA, or develop another mechanism to assure that conditions are binding, including a provision allowing any citizen of Teton County to enforce these restrictions. The restrictions agreed to by the Town of Jackson, Teton County, and EPA could then be incorporated as grant conditions to the Step III construction grant.

Initially, these conditions were not met favorably by either the Town or the County. As a result, the firm of Biscoe, Murray, Maphis and Lamont was hired by EPA on December 14, 1977, to negotiate a settlement. The proposed set of conditions developed by the mediator in the ensuing months included a plant capacity based on a six (6) percent growth for 1995, and an "out-of-city" tap-in allocation of 51 equivalent taps per year. Following a legal opinion from EPA on February 8, 1978 which stated that such contractual arrangements were indeed binding, a subsequent meeting was scheduled in Washington, D.C. to sign the proposed agreement. However, at the meeting a significant amendment was substituted to the agreement permitting Teton County to independently establish its own growth management policy as an element of the County's Comprehensive Plan. The amendment stipulated that the tap-in rate be determined no later than the date the treatment plant became operational.

On April 13, 1978, the agreement was signed and all parties conceded to proceed with the updated facilities plan considering only alternative locations near the proposed South Park Road site. A copy of the agreement is included as Appendix A. C.E. Maguire, Inc., (formerly NHPQ) was selected to update the plan. Due to difficulties in construction of an outfall line to the Snake River that would remain hidden (a probable requirement of the Wild and Scenic River Study identified in the draft EIS), it was decided to investigate a non-discharging lagoon/rapid infiltration land application system. Also, because land costs are extremely high in the area, the decision was made to consider the option of constructing a mechanical plant (oxidation ditch) in order to reduce these costs and land requirements.

On September 11, 1978, the facilities plan alternatives were presented to the Jackson Town Council, at which time agreement was reached that the South Park Lower Bench site with an aerated lagoon/rapid infiltration system should be the recommended plan. Formal approval of the recommended plan was received from the Town of Jackson by C.E. Maguire, Inc., on September 29, 1978.

In late October, 1978, the draft Jackson, Wyoming 201 Wastewater Facilities Plan Update was completed by C.E. Maguire, Inc. The following sections of this document present an evaluation of the primary and secondary environmental impacts of the wastewater treatment alternatives analyzed in the Facilities Plan Update. The document also presents the response to comments received and issues raised in the draft EIS.

SECTION III

SECTION III. AFFECTED ENVIRONMENT

A. PHYSICAL ENVIRONMENT

1. Location, Physiography and Geology and Visual Characteristics

The Town of Jackson is located in Teton County, Wyoming, east of the Idaho-Wyoming border in a valley generally known since the days of the early trappers as Jackson Hole (Figure 1). Teton County includes approximately 2,873 square miles of land area. The area is characterized by spectacular scenery including the Teton Mountains, numerous morain lakes and the Snake River floodplain.

The physiography of Teton County is the result of relatively recent geologic processes. Jackson Hole is a north-south oriented basin formed by fault movements. Glaciers sculpted the "hole," with most of the valley floor formed by deposition of gravel along the Snake River. For a more detailed description of the physiography and geology of the area, the interested reader is referred to Creation of The Teton County Landscape (Love and Reed, 1971), and Teton County Growth And Development Alternatives (Livingston and Associates, 1976).

The County is rich in scenic resources. To assist in the preservation of these resources, the Teton County Comprehensive Plan and Implementation Program (1977) was developed to include a Scenic Preservation Element. Legislation to create the Jackson Hole Scenic Area was also introduced to the 95th Congress. This legislation would provide funds (up to $200 million) to purchase easements on the most scenic private lands in the valley. The bill was modified late in the session to study priority land acquisition areas, and will be re-introduced in the next session.

2. Climate, Soils, Hazard Areas

Climate in the Jackson study area is characterized by comparatively harsh, long winters and cool, dry and short summers. Climatic conditions are predominantly influenced by the Teton Mountain Range (elevations of 7,000-13,000 feet). Precipitation in the mountain areas may exceed 70 inches annually.

The elevation at the Town of Jackson is approximately 6,244 feet. Mean monthly temperature and precipitation data is summarized in Table 1. The average annual precipitation at Jackson is 14.83 inches.

Precipitation is highest during the winter months of December through February, and the spring months of May and June. The mean annual temperature is 34.2°. July is the warmest month with temperatures averaging 60.9°F. January is the coldest month with temperatures averaging 14.2°F. The length of growing season in the Jackson area is approximately 186 days.

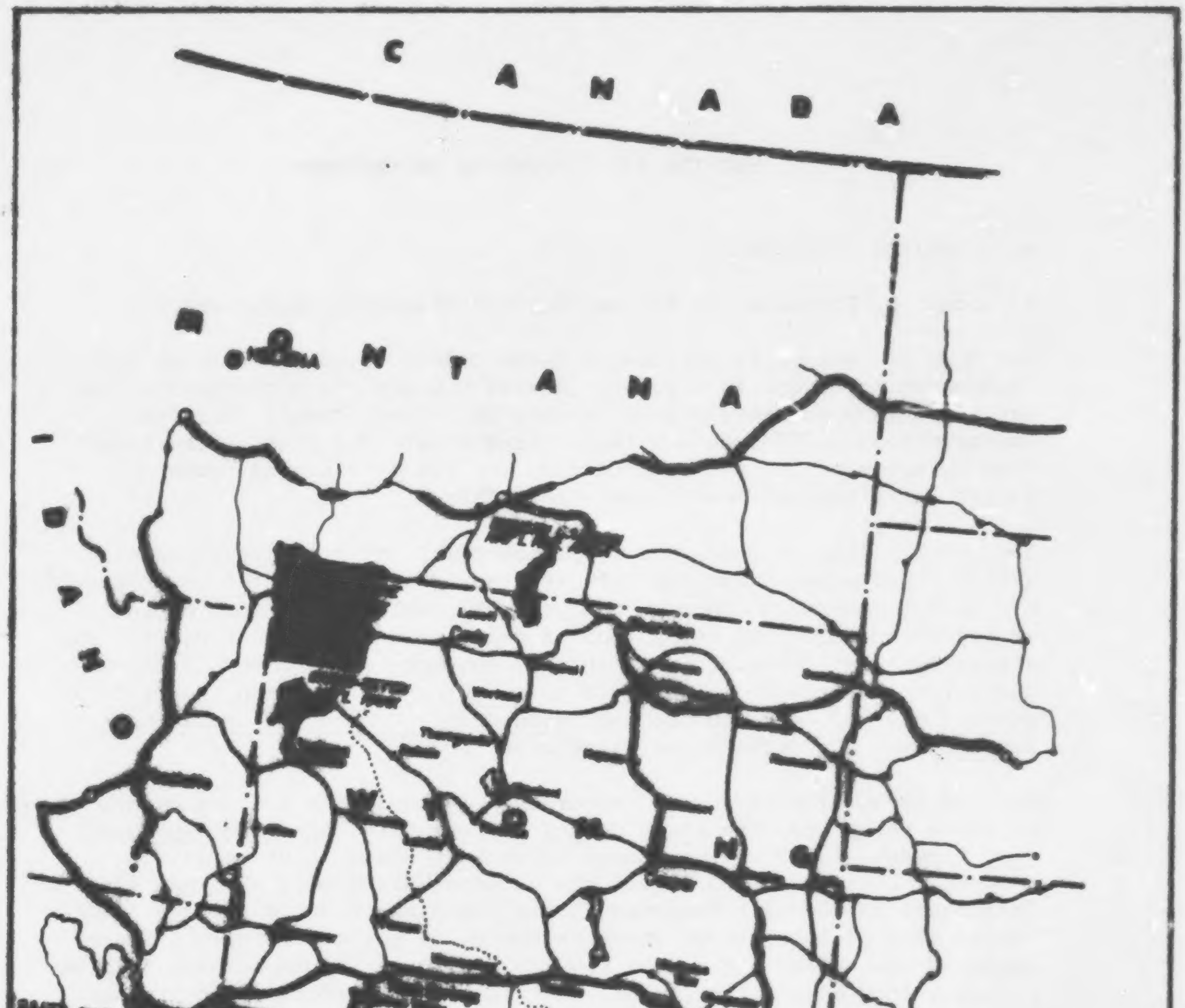

CANADA
MONTANA
HELENA
IDAHO
WYOMING
SALT LAKE CITY
UTAH
COLORADO
DENVER
COLORADO SPRINGS
PUEBLO
north

FIGURE 1
GENERAL LOCATION
MAP

Table 1. Summary of Selected Climatic Data for Jackson, Wyoming, 1931-1960[1/]

Month	Mean Temp. °F	Precipitation (Inches) Mean	Precipitation (Inches) Mean Snowfall
January	14.2	1.43	15.7
February	18.2	1.32	15.2
March	26.1	1.20	11.7
April	38.4	1.20	4.0
May	46.8	1.50	1.2
June	54.0	1.51	Trace
July	60.9	0.75	0.0
August	59.0	1.12	0.0
September	51.5	1.04	0.5
October	41.8	1.11	2.1
November	26.9	1.11	9.2
December	18.1	1.54	16.0

[1/] Source: Lower Valley Power and Light, Inc., 1974.

Average relative humidity ranges from 55 percent to 60 percent. Wind directions are variable, but predominantly blow from the southwest.

Air quality, which is described in more detail in the *Draft Environmental Impact Statement, Jackson Wastewater Treatment System, Town of Jackson, Wyoming,* (Draft EIS Jackson Wastewater Treatment System)(EPA, 1977), is determined by local topography and meteorological conditions. Air quality is generally good, although monitoring data for the area is limited. However, Jackson Hole is subject to frequent inversions which affect the dispersion of particulates. Compliance with state standards will undoubtedly require that reasonable precautions are taken during the construction phases of the project to prevent dust from becoming airborne. The major odor problem in the area is associated with the existing wastewater treatment facilities during the warmer months of the year.

Soil types in the study area are diverse, and related closely to the geologic processes that form them. For the purposes of this discussion, soils of the valley floor and adjacent uplands are of three general types based on their geologic origin. Glacial outwash soils occur extensively throughout the valley and are characterized by large cobbles and generally coarse soils. Soils formed on glacial moraines are also common throughout the valley, consisting of finer textured outwash materials. Coarse to fine textured alluvial and loess soils are present along all of the main tributary streams in the valley. The mountain areas are formed from hard sedimentary parent materials.

Development constraints associated with soils conditions have been identified for much of the study area by Livingston and Associates (1976). These constraints are based on vulnerability to erosion, suitability for septic tanks, value for agricultural production, and potential for revegetation.

Physical hazards which exist in the study area are generally of four types and include: 1) fault zones and seismic risk; 2) slope stability, 3) high groundwater problems; and 4) flooding. Many of the land areas have more than one of these hazards.

Fault Zones and Seismic Risk

The Jackson area is considered among the most active seismic areas in the United States. A number of active and inactive faults criss-cross the valley floor. According to the National Oceanic and Atmospheric Administration (1978), 28 earthquakes of a magnitude of V or greater on the Modified Mercalli Scale have occurred in the past 70 years. Information on general fault locations for the area has been compiled by Leopold and Twiss (1976). Major fault zones (zone widths over 1,000 feet) are identified in the *Draft EIS*, *Jackson Wastewater Treatment System* (EPA, 1977). Of particular interest in the *Jackson, Wyoming 201 Wastewater Facilities Plan Update* (C.E. Maguire, 1978) is the Flat Creek Fault which runs in a southwesterly direction along the Flat Creek floodplain through the Town of Jackson, south to the Snake River.

Slope Stability

Rock falls and avalanching occur frequently throughout the study area on slopes steeper than 30 percent. Examples of this geologic activity include portions of the Boyle's Hill area southwest of the Town of Jackson, and the bench area east of Flat Creek. Many naturally unstable slopes also exist along the east flank of the Snake River below South Park. Slope hazard information for the Jackson area has been mapped by Haible (1976), and is shown in the Draft EIS, Jackson Wastewater Treatment System (EPA, 1977). These areas are generally not suitable for any land use which disturbs vegetation, soil, or the natural drainage system.

High Groundwater

Groundwater hazard areas in the Jackson study area occur generally in the lowlands south of the Town. These hazards take the form of poorly-drained soils with groundwater levels less than five feet below the ground surface. Saturated or near-saturated soil conditions within and adjacent to the Flat Creek and Snake River have created some water quality problems due to malfunctioning septic tanks. It has been estimated that individual waste disposal systems currently service more than one third of the County's population. Groundwater conditions have been mapped by Haible (1976) utililizing soils data from the U.S. Soil Conservation Service. This information is periodically updated as an element of the Teton County Comprehensive Plan and Implementation Program, 1977.

Flooding

The Snake River dominates the western portion of the Jackson study area. Much of this land area adjacent to the river has been designated within the boundaries of 100-year floodplain of the Snake River by the U.S. Army Corps of Engineers (Corps, 1976). Boundaries of the 100 and 500-year floodplains for the Snake River are also identified in the Draft EIS, Jackson Wastewater Treatment System (EPA, 1977). Portions of Flat Creek are also subject to less frequent, but periodic winter flooding caused by ice blockages. Flood hazard constraints through much of the study area limit development potential. These limitations are defined in the Teton County Comprehensive Plan and Implementation Program, 1977. Executive Order 11988 (issued May 24, 1977) also directs Federal Agencies to "avoid direct and indirect support of floodplain development wherever there is a practicable alternative." Requirements of the National Flood Insurance Program, and EPA Flood Insurance Requirements (PRM-77-1) further define pertinent floodplain development requirements.

B. BIOLOGICAL ENVIRONMENT

1. Vegetation, Wildlife and Fisheries

Vegetation in the Jackson study area is mainly of the Great Basin and Rocky Mountain transition zone. The predominant species in the valley floor are the big sagebrush (Artemesia tridentata) and crested wheatgrass (Ayropyron spicatum). Bush willows (Salix lasiandra) and alders (alnus tenuifolia) are prevalent along the Snake River and Flat Creek flood plains. Mixed stands of conifer and aspen characterize the lower upland areas. Lodgepole pine (Pinus contorta) and Douglas fir (Pseudotsuga menziesii) are the predominant forest type.

A comprehensive listing of plant types of the Jackson Hole area can be found in Plants of Yellowstone and Grand Teton National Parks (Shaw, 1974). A more detailed discussion of vegetation and watershed protection is included in the Draft EIS, Jackson Wastewater Treatment System (EPA, 1977).

Wildlife in the study area are numerous and diverse. The area provides important habitat and migration routes and feeding areas for a number of animal species. Major big game species include elk, moose, and deer. Black bear, bobcat and mountain lion are also present in the area. Smaller species include beaver, otter, racoon, marmot, chipmunk, ground squirrel, and skunk.

The National Elk Refuge and the South Park Elk Feedground are particularly important to the local economy. The National Elk Refuge, which was established in 1911, winters over 8,000-10,000 head of elk each year. In 1939, an additional 636 acres of land in Lower South Park was established by the Wyoming Game and Fish Commission for maintenance of an additional 800-1,000 head of elk. A proposal to locate the Town of Jackson wastewater treatment plant on 20 acres of land inside the Feedground was dismissed by the EPA as a result of the findings of the Draft EIS, Jackson Wastewater Treatment System (EPA, 1977).

Numerous bird species inhabit or migrate through the region. Geese, and a variety of ducks and wading birds inhabit the area. Raptors including asprey, bald eagle, peregrine falcon, and other more common hawks and falcons are also prevalent. Other birds include mourning doves, owls, sparrows, numerous songbirds, magpies and raven.

Both Flat Creek and the Snake River (through the study area) support an active, self-sustaining cold water fishery. Although the Wyoming Department of Game and Fish has done only a limited amount of studies on Flat Creek, according to the Department the stream does support a fair cutthroat population. The Snake River is considered a trophy stream for the Snake River cutthroat species. Other important species include rainbow and eastern brook trout, and whitefish.

No threatened or endangered plant species have been observed in the study area. According to the U. S. Fish and Wildlife Service, two rare or endangered species may be found as either transient or resident in the South Park area. These species include the American peregrine falcon and the blackfoot ferret. Both the Canadian lynx and wolverine, which are considered threatened in the western United States, have also been observed in the undeveloped areas of South Park. A number of fish species have been identified as warranting special preservation consideration (Lower Valley Power and Light, 1974). Probably the most important in terms of the existing sport fishery is the Snake River cutthroat trout.

2. General Hydrology

The Snake River Basin encompasses approximately 5,139 square miles in western Wyoming (DEQ, 1976). This area includes all of Teton County, a sizeable region in Lincoln County, and small portions of Sublette and Fremont Counties. Part of Yellowstone National Park and all of Grand Teton National Park lie within the Snake River drainage. The area is the only portion of Wyoming which drains to the Columbia River system.

Most of the streams in the Jackson area originate in the uplands surrounding Jackson Hole and flow to the Snake River. Major tributaries to the Snake River in terms of discharge by downstream order include: Pacific Creek, Buffalo Fork, Cottonwood Creek, Gros Ventre River, Fish Creek, Flat Creek, and Hobach River.

Approximately 4,632,500 acre-feet of surface water flow drains from the Snake River Basin annually (WDEQ, 1976). Major water users include irrigation, the timber industry, and municipal. For a more detailed description of the water resources, and streamflow characteristics of the Snake River Basin, the interested reader is referred to Water Resources of Northwestern Wyoming (USGS, 1974), and Discharge Measurements and Chemical Analysis of Water in Northwestern Wyoming (USGS, 1975).

4. Surface and Groundwater Quality

The assessment of current water quality conditions in the Jackson study area, and the evaluation of wastewater treatment alternatives, is dependent on the classification of specific waters according to downstream use classification. The existing water quality standards for the State of Wyoming are described in Chapter 1 of the Wyoming Water Quality Rules and Regulations revised in June, 1978. These regulations, which are discussed in more detail in the Draft EIS, Jackson Wastewater Treatment System (EPA, 1977), define three principal water use classes based upon nondegradation and the stream's ability to support fish species.
Class I waters have the most restrictive standards, with no further degradation by point sources allowed. Class II water's restrictions are based on the ability to support game fish; with Class III waters requirements being less restrictive. For the purposes of this discussion, major attention is given to describing water quality conditions in Flat

Creek and the Snake River. These two water courses will be directly affected by wastewater treatment alternatives developed for the Town of Jackson.

A majority of the major watercourses in Teton County, including Flat Creek and the Snake River below Wilson, are designated as Class II streams. The Snake River from the Wilson Bridge to the head waters, Fish Creek, and all waters within Teton National Park are presently designated as Class I waters. Flat Creek, which originates in the Gros Ventre Range, has been identified as the "most critical stream segment in the Snake River Basin in terms of possible impairment of water quality" (DEQ, 1976). Flat Creek water quality is generally good above the Jackson Hole National Fish Hatchery. Below the hatchery, the stream is impacted by a number of point and nonpoint sources including stormwater runoff, discharge from the Town of Jackson sewage treatment plant and agricultural activities (Teton County 208 Planning Agency, 1977).

Flat Creek

Table 2 summarizes Flat Creek water quality. From the profile information, the general trend appears to be a deterioration in water quality downstream from the National Fish Hatchery. Temperature ranges from a mean value of 5.0°C at the hatchery, to 6.3°C at the South Park Bridge below the treatment plant. D.O. concentrations demonstrate a corresponding trend, with values highest at the upstream sites and gradually decreasing as the stream approaches the more highly developed "urban" areas. BOD elevates below the Jackson treatment plant, indicative of the wastewater effluent discharge. A maximum BOD of 3.2 was measured at the sampling station below the treatment plant during the month of March, 1976. Ortho-phosphate and nitrate levels show substantial increases below the plant, with mean levels of 0.012 mg/l ortho-phosphate and 0.044 mg/l nitrate observed at the two downstream sites. These phosphate levels are well above the concentrations capable of promoting algal blooms. Fecal coliform counts showed the most significant indication of water quality degradation, with mean values at the two lower sites of 440/100 ml and 231/100 ml recorded. These values do not include several TNTC recordings. Results of a November, 1975 monitoring program for Flat Creek showed similar trends. This study is discussed in more detail in the Draft EIS, Jackson Wastewater Treatment System, (EPA, 1977).

The Wyoming Department of Environmental Quality (DEQ) maintains a monitoring station on the Snake River above the Flat Creek confluence. Information for the station summarized in the Draft EIS, Jackson Wastewater Treatment System, (EPA, 1977) for the period November, 1973 - November, 1975, indicates water quality is excellent. Dissolved oxygen concentrations are high, ranging from 8.0 to 13.2 mg/l. Turbidity levels are low. Nitrate and phosphate concentrations are also relatively low, with mean levels of 0.20 and 0.04, respectively, reported for the sampling period. Fecal coliform counts ranging from no colonies observed, to 172 colonies/100 ml were also reported. The present State of

Table 2. Flat Creek Water Quality Monitoring Stream Profile
September, 1975 - June, 1976[1]

Sampling Station	Temp. °C	Water Quality Monitoring Parameters/Mean Values D.O. (mg/l)	pH	BOD	TSS (mg/l)	Ortho-P(mg/l)	NO_3-N (mg/l)	Fecal Coliform #/100 ml
F3-Flat Creek, at National Fish Hatchery	5.0	9.4	7.8	1.6	7.3	0.006	0.022	9
F6-Flat Creek, North of Jackson at Highway 26 Bridge	5.0	9.0	7.9	2.0	6.9	0.007	.030	130[2]
F7-Flat Creek, South of Jackson at South Park Road Bridge.	6.3	9.5	8.1	2.8	30.5	0.012	.047	440[2]
F8-Flat Creek, North of Snake River Confluence	6.2	9.2(8.1)[3]	7.9(33)	2.4	23.7	0.044(0.26	.064(0.01)	231[2]

[1] Source: Teton County 208 staff, 1977.

[2] Does not include TNTC recorded counts.

[3] Levels shown in () are from a recent September 27, 1978, sampling by C.E.-Maguire, Inc.

Wyoming fecal coliform standard for the Snake River (Wyoming-Idaho stateline, upstream to the south boundary of Yellowstone Park) is 200 fecal coliform groups/100 milliliters during the recreation season (May 1 to September 30), based on a minimum of not less than five samples obtained during separate 24-hour periods for any 30-day period. Subsequent monitoring at the site by the Teton County 208 Agency in 1976 further substantiates these findings.

Below the confluence with Flat Creek, water quality conditions in the Snake River deteriorate due to discharge from the Jackson treatment plant, agricultural activities, and numerous nonpoint source sediment-producing activities. A number of violations in the fecal coliform standard have been recorded. A more detailed discussion of these activities is presented in the Teton County Water Quality Management Program (Teton County 208 Planning Agency, 1977). This study includes recommendations concerning minimum flow requirements, irrigation diversions, additional monitoring needs, and instream phosphorus limitations criteria for the Snake River. These recommendations, and wastewater management options considered by the Town of Jackson and Teton County are particularly important with respect to the potential for increased eutrophication at Palisades Reservoir. Until more water quality data is obtained, the 208 Plan has recommended a maximum allowable in-stream phosphorus criteria of 0.1 mg/l for all surface waters in Teton County. This criteria is designed to serve as a guideline for establishing discharge permit limitations and developing best management practices for the control of nonpoint pollution sources.

The primary sources of groundwater in the Jackson study area are precipitation and infiltration from surface streams, irrigation drains and lakes. The depth to groundwater varies from zero in marshland areas to nearly 200 feet along the Gros Ventre Range front. Depth to groundwater is also dramatically affected by Snake River streamflow.

Groundwater quality throughout the study area is good. Quality is affected by the chemistry of nearby streams. Groundwater is generally of the calcium bicarbonate type and moderately to very hard. Chloride, fluoride and nitrate levels are low in comparison to drinking water standards.

Table 3 summarizes groundwater quality monitoring performed at the proposed Lower Bench site during the summer of 1978. Depth to groundwater at the site varied from 0.64 to 6.81 feet depending on the location of the test wells. From this information, it can be seen that quality is generally good. Total dissolved solids, mercury, and nitrate levels are well below the established drinking water standards. However, maximum BOD levels of 48.0 (Site A, NW well) were relatively high for groundwater. Similarly, mean recorded phosphate concentrations were above levels known to accelerate algal growth and eutrophication (the maximum recorded concentration was 0.52 mg/l). Coliform concentrations were not measured during this sampling.

Table 3. Summary of Groundwater Quality at the Lower Bench Site August 24, 1978[1/]

Parameters	Mean Level Observed (mg/l)	Recommended U.S. Public Health Service Drinking Water Standards (mg/l)
TDS	278	500
Tot. Alk. ($CaCO_3$)	250	---
Tot. Hard.	259	---
Chloride	5.3	250
Fluoride	0.36	1.7-2.4
Iron	0.93	0.30
Nitrate (as N)	0.07	10
Mercury	ND[2/]	0.005
Phosphate (PO_4)	0.18	0.10
BOD, 5-day	30	---

[1/] C.E. Maguire, Inc., 1978

[2/] N.D. - Not detected.

C. HUMAN ENVIRONMENT

1. Land Use and Ownership

Teton County is a sparsely settled land area which includes approximately 2,873 square miles. The County contains some 1,838,720 acres of land; 1,795,328 of which are land surface, and 43,392 acres of water area (EPA, 1977). Approximately 97 percent of the County is federally owned. The U.S. Forest Service and U.S. Park Service administer the majority of this land (1.74 million acres). About 75,000 acres are privately owned. In 1969, there were approximately 64,403 acres of farmland in the County. However, since 1969 the general trend has been toward increasing urbanization. In 1976, it is estimated that some 55,483 acres were in agricultural use (WRRI, 1977). The four basic categories of land development in Teton County can be summarized as relatively urbanized areas around the Town of Jackson and Moose; mixed urban/agricultural areas of Alta and Wilson; predominant agricultural and rural residential areas like those in South Park; and scattered commercial uses at highway junctions and strip commercial development along highway frontage.

Most of the land area located within the present Jackson town limits has been developed for residential, visitor and retail/service commercial, and light industrial uses (approximately 1,160 acres). An additional approximately 9,400 acres of land located primarily south of Town in South Park, which would be affected by the location and size of wastewater treatment facilities being planned for Jackson, are primarily ruralundeveloped or used for agricultural purposes, with sparse residential development along the main transportation routes. The site proposed for location of the treatment facilities (Lower Bench site) is privately owned. The owner has indicated the site (approximately 40 acres) will be dedicated to the Town of Jackson for the treatment plant.

2. Population and Economic Base

Reliable population forecasts for Teton County and the Town of Jackson are extremely difficult to make. Both the County and Town have high rates of migration, substantial seasonal and part-time employment, and significant numbers of seasonal and part-time residents.

Historically, the Town of Jackson population has shown a steady increase since 1940. During the last seven years, the population has increased at an annual rate of six (6) per cent, from approximately 3,196 to 4,505 (1977).

Figures prepared by Livingston and Associates (1976) as part of the development of the overall Teton County Growth and Development Alternatives projected the County would experience a minimum three (3) percent growth annually through 1990, while the maximum growth would probably go no higher than five (5) percent annually. These projections, along with historic Teton County and State of Wyoming population data, are summarized in Table 4.

TABLE 4 POPULATION DATA SUMMARY AND PROJECTED GROWTH ESTIMATES, 1967-1995 1/

Year	Teton County	State of Wyoming
1967	4,295	331,711
1968	4,471	331,946
1969	4,647	332,181
1970	4,823	332,416
1971	5,150	339,278
1972	5,475	346,139
1973	5,800	353,000
1974	6,400	359,000
1975	7,000	365,861
1976	7,500	---

	@ 3% Growth	@ 5% Growth
1978	7,956	8,268
1980	8,441	9,116
1985	9,785	11,634
1990	11,344	14,849
1995	13,046	18,561

1/Source: Water Resources Research Institute, University of Wyoming, 1977.

For the purposes of projecting future wastewater needs for the Town of Jackson, a six (6) percent annual growth rate was used in the Draft EIS, Jackson Wastewater Treatment System, (EPA, 1977). These projections are presented in Table 5. This figure was used primarily because it was necessary, for facilities planning purposes, to determine the maximum seasonable population that could be expected in the 20-year planning period. These projections show a 1995 Town of Jackson population of 12,857. For the purposes of wastewater planning and cost estimating, this figure represents the adopted 1995 population for the facilities service area.

Projections for Teton County shown in Table 5 were revised during the preparation of the final EIS. These revisions were made using a five (5) percent growth rate. The five (5) percent figure was adapted upward, based on the following assumptions:

- A primary consideration in developing population forecasts for the Jackson service area is the availability of developable land, as identified in existing or proposed land use plans.
- The majority of development that takes place in Teton County during the facilities planning period (1977-1995) will occur within an area that could be served by central sewer, given the proposed South Park Lower Bench site for the treatment plant.
- With the removal of a primary constraint to development in the South Park area (i.e., wastewater treatment facilities), the growth rate for the Town of Jackson and the rest of the area which could conceivably be served by central sewer will exceed the maximum rate projected by Livingston.
- The proposed expansion of Teton Village described in the Jackson Hole Ski Area Master Plan, coupled with the availability of improved sewer facilities at Jackson, will result in additional development pressures in the Town and the South Park area associated with the required for support personnel housing.

Using this set of assumptions, the 1995 Teton County population is expected to be approximately 18,953. This figure is probably reasonable, given the fact that existing Teton Village hotel-motel facilities which currently accomodate 2,612 persons are programmed for expansion to handle a population of 8,452 by 1992 (Jackson Hole Ski Corp, U.S.F.S.; 1978). Although expansion of Jackson Hole Ski Area will not directly affect the Town of Jackson wastewater treatment facilities, some pressure to supply support housing will undoubtedly occur in the Jackson area. These estimates also appear to be in line with the growth rate experienced during the ten-year period 1960 to 1970, when the Teton County annual rate averaged just over six (6) percent (WRRI, 1977).

It should be emphasized, however, that reliable figures for Teton County have been difficult to obtain in the past due to the dynamic and

TABLE 5 POPULATION PROJECTIONS FOR WASTEWATER FACILITIES PLANNING, TOWN OF JACKSON AND TETON COUNTY, WYOMING 1/

Year	Town of Jackson 2/ @ 6%	Teton County @ 5%
1977	4,505	7,875
1978	4,775	8,268
1979	5,062	8,682
1980	5,365	9,116
1981	5,687	9,572
1982	6,028	10,050
1983	6,390	10,553
1984	6,773	11,080
1985	7,180	11,634
1986	7,610	12,216
1987	8,064	12,827
1988	8,552	13,468
1989	9,065	14,142
1990	9,608	14,849
1991	10,184	15,591
1992	10,796	16,371
1993	11,443	17,190
1994	12,129	18,050
1995	12,857	18,953

1/ Source: James M. Montgomery, Consulting Engineers, Inc.

2/ This projection includes future population that would reside on the fringe areas of Jackson, generally within the one (1) mile jurisdictional area.

seasonal nature of the area, and the many outside factors which can dramatically affect the tourism industry (i.e., national economy, weather, energy availability, etc.). A number of variables including decisions by the Town or County to increase treatment plant capacities for the Town of Jackson facility over the proposed 3.5 mgd capacity, or relax out-of-city tap-in requirements could have major impacts on population growth in the area.

The Draft EIS, Jackson Wastewater Treatment System, (EPA, 1977) identified a non-resident full over-night capacity of 9,600 individuals for the year 1976. The projected 1995 peak non-resident population shown in the document was 13,985. These forecasts were based upon the 1976 contribution this segment of the population had on the amount of wastewater generated, and not estimates of actual people in the Town. These forecasts are factored into the 1995 projected design flow for the wastewater system.

General population characteristics in Teton County are similar to those for the rest of the state. There are slightly more persons in the 25 to 44 age bracket, and slightly fewer in the 55 and over age categories (WRRI, 1977). Only 39.6 percent of the persons living in the County are Wyoming natives.

The economic base of Teton County focuses on tourism. In both 1970 and 1974, services employment accounted for approximately 40 percent of the total County employment. Services include hotels, motels, personal services, automobile services, amusement and recreation and other miscellaneous services. Related wholesale and retail trade accounted for an additional 24 percent of the local employment. Services also accounted for the largest percent of personal income for County residents (approximately $9,049,000) in 1974. Wholesale and retail trade produced approximately $6,025,000 in earnings. Government and construction accounted for $9,315,000; while agricultural earnings totaled $1,431,000 (WRRI, 1977).

Of the service category, accomodations (hotel, motels, trailer parks and campgrounds) was the leader in the total County receipts, with receipts totaling over $11 million. Approximately 85 of these types of establishments generated the income. Amusement and recreation brought in about $2 million to the local economy.

During the past ten years (1967-1977), tourism (number of Jackson Hole visitor days) has increased substantially. Annual park visitation and skier days increased 4.16 and 11.6 percent, respectively (TCGSC, 1978). This situation is an important consideration in determining non-resident populations and associated wastewater requirements for the Jackson area.

The per capita income of people living in Teton County is substantially higher than the State average (up to 37 percent higher). In 1973, for example, the per capita income for the County was $6,422, as compared to $4,696 for the State of Wyoming. This difference is attributed in part to a greater number of individuals residing in the County with incomes exceeding $25,000.

Revenue for operating Teton County comes from five principal sources which include revenue-sharing funds, property tax levies, gasoline tax levies, gasoline tax receipts, sales and use tax receipts, and other sources of revenue. In FY 1975-76, the other category (licenses, cigarette and liquor taxes, etc) accounted for 41 percent of the County's revenue, (approximately $600,000) sales and use tax 32 percent ($467,000), property tax 12 percent ($175,000), gasoline tax nine percent ($130,000), and revenue sharing six percent ($85,000). The total operating budget for Teton County during this year was approximately $1.5 million. Historically, Teton County has received a higher amount of their total revenue from the sales and use tax category and less from the property tax category, and as opposed to the state as a whole. It is estimated that over 55 percent of the total sales in the County are attributed to tourism ($25 million in sales in 1976). For a more detailed discussion of the Teton County economy, the interested reader is referred to Teton County and the Proposed Comprehensive Plan and Implementation Program; An Economic Analysis (WRRI, 1977).

3. Housing and Public Services and Utilities

Housing Types, Availability: The number of housing units in Teton County has increased nearly 54 percent since 1950. This figure compares to a 21 percent increase statewide. In 1970, there were 1,995 housing units in the County. Of this total, 1,373 were single-family residential, 321 were trailers, and 301 were multi-family residential (WRRI, 1977). Many of the new housing units in the County are mobile homes and trailers. During the same period, the number of mobile homes and trailers increased from 17 to 321. The number of apartments and condominiums also increased sharply during this period. Much of the increase in apartments and condominiums is attributed to seasonal homes. Approximately six percent of the total housing in the County is seasonal or nonresident. This compares to 1.7 percent statewide.

The housing supply in the Jackson area is limited. The cost of land, physical constraints (i.e., high groundwater, floodplains, etc.), high development costs, and restrictions on mobile homes have resulted in a shortage of houses in the study area and Teton County. Although detailed information on housing availability and conditions has not been prepared for the County, a comprehensive housing survey has been scheduled as an element of the overall work program for 1979. Information from the survey will be used to develop a housing plan for the area. This is particularly important in view of a number of development proposals which could have a major impact on supply of housing in the Jackson Hole area. Probably the most significant of these proposals is the proposed expansion of the Jackson Hole Ski area.

Transportation: The Jackson Hole area's traffic and parking problems have traditionally been associated with the area's summer tourist economy. While the existing transportation system in Teton County presently meets local needs, transportation facilities are limited due to the mountainous terrain, and transportation facilities are heavily impacted by tourism. The major highway is U.S. Highway 26,89, and 187, which runs the entire length of the County. The highway provides major access to Grand Teton National Park and Yellowstone National Park from the Town of Jackson. In 1974, the facility provided for 3,800 trips per day (LVP&L, 1974). During the tourist season, however, this number of trips could be exceeded in a matter of hours. The situation is exemplified by the estimate that approximately 4 million people visit the Grand Tetons each year. Park visitation has increased some 50 percent since 1967. Highway 22 also provides main access to Grand Targhee Ski Resort. Some discussions have occurred concerning the feasibility of constructing a second access from West Jackson to the Town. These discussions are preliminary in nature, and the emphasis has been on local traffic flow improvement. The Town of Jackson and the State of Wyoming share the responsibility of maintaining the Town's roads. Maintenance and snow removal for County roads is contracted out to private business.

No rail service exists in the County. Freight is handled by trucks. The Jackson Hole Airport, which serves the area, is located in Teton National Park. The airport is served by Frontier Airlines. During the past ten years, airline trips have increased an average of ten percent per year (TCGSC, 1978). Although there has been a good deal of discussion and debate over expansion of the facility to accomodate larger jets, and EPA has opposed any additional development of the airport. The current lease will expire in 1995. The likelihood of any expansion of the facility is remote.

Schools: The Jackson study area lies within the jurisdiction of Teton County School District No. 1. The District includes the Jackson, Kelly, Afton and Wilson Elementary Schools, Jackson Hole High School, and Jackson Hole Middle School. According to the District, the elementary facilities (Grade K-5) are currently at, or over capacity. The Middle School (Grades 6-8), with an enrollment of 400 students, is slightly under capacity. The Jackson Hole High School (Grades 9-12), is currently at capacity with 500 students. A new 750 student high school is being constructed on land located adjacent to the existing Town of Jackson Sewage Treatment Plant. The projected costs for the facility is $4.5 million. When the school opens, it is projected that enrollment will be approximately 600 students.

School enrollment figures for Teton County have shown an overall average increase of approximately 1.93 percent since 1968. This growth rate is slower than the community as a whole, but considerably above the national norm (TCGSC, 1978).

School District revenues are received from local, state and federal sources. A study conducted by the Water Resources Research Institute, University of Wyoming in 1978, showed that the District's revenues and expenses have steadily grown as a function of population growth (WRRI, 1978).

Fortunately for the County, the population growth has occurred much faster than the proportional number of school age children. This situation is discussed in more detail in Section VI of this document.

Fire Protection: Fire protection in the Town of Jackson and the outlying areas of South Park is provided by a combined Town/County volunteer fire group. Equipment and manpower include four Class A pumpers (750-1200 gpm capacities) and 32 volunteer personnel. Two auxillary units are maintained at Hoback and Wilson. According to local fire department officials, the main fire protection problems in the area are associated with service distance and response time, and access during the winter months. The Town of Jackson currently maintains a Class 8 fire insurance rating, while the County maintains a Class 10. Ratings are established by the Insurance Services Office of New York, Wyoming Survey and Rating Service Local Branch. Ratings are based on a 1-10 scale, with Class 1 representing the best possible rating, and Class 10, no fire protection available. The Town of Jackson currently requires that new subdivisions be served by hydrants. The County has adopted Wyoming State regulations for commercial building types.

Police Protection: Polic protection within the Town limits of Jackson is provided by the Town of Jackson Police Department. The work force consists of 12 full-time and two part-time (summer) officers, and support personnel. Equipment includes five marked and three unmarked patrol cars, all of which are in good condition. Major law enforcement problems are summer traffic and crowd control, and theft and burglary.

Teton County is served by the Teton County Sheriff's office. The force consists of 13 full-time officers, and eight support personnel. Three additional personnel are utilized at the airport for security. Personnel operate out of the Town of Jackson. Equipment includes ten patrol cars, all of which are in good condition. Problems vary from dog control to armed robbery. The Department also maintains substations at Alta and Moran.

Public Water: The Town of Jackson public water supply is provided by four deep water wells. The system also includes a two million gallon reservoir. The service area includes the Jackson town limits and several small adjoining areas. Pumping and storage facilities for the system do not include reserve capacities for fire protection.

Supplies are generally adequate to serve the Town and tourist populations. However, during peak visitor days in the summer, controls are required (i.e., alternate day sprinkling). The Town of Jackson is currently considering the feasibility of extending service to the designated Jackson Planned Expansion District. The area includes some 540 acres of sparsely developed land.

Power: The power supply to the Town of Jackson and surrounding area is provided by Lower Valley Power and Light, Inc. (LVP&L). The Bonneville Power administration supplies most of the energy to LVP&L. Although existing facilities are adequate to meet current demands, some shortages have occurred in the past. During the ten-year period 1967 to 1977, utility hookups showed an average annual increase of 12.48 percent per year, with the County sustaining the bulk of growth. Town of Jackson hookups more than doubled during this period, while County hookups more than tripled (TCGSC, 1978).

Solid Waste: The existing County solid waste disposal site is situated on 28 acres of land located approximately eight miles south of Jackson in Horsethief Canyon, off U.S. Highway 26,89 and 187. The site is owned by the U.S. Forest Service and the U.S. Bureau of Land Management. At present, it is estimated that about 7,100 tons of solid waste are disposed of annually at the facility. The operation has approximately two years of effective life remaining under current operating conditions. The potential for expansion of the existing facility is remote due to land requirements and availability.

The disposal site does not meet landfill requirements defined in the Wyoming Department of Environmental Quality Solid Waste Management Rules and Regulations. The County is currently studying alternate site and solid waste disposal facilities to meet future needs. This study is also considering the feasibility of a separate hazardous waste facility for disposal of septic tank wastes and sludge (Nelson Engineering, 1977).

4. Cultural Resources

The Jackson Hole area has a rich history going back to the early 1800's. The area was named for the trapper, David E. Jackson. Many years earlier, the Shoshone Indians had named the surrounding Teton Mountains "Teewinot," or pinnacles. Traces of Indian history can be found throughout the valley. Permanent settlement began about 1878, as the trapping industry transformed to a primarily agricultural base.

Discussions with the Wyoming Recreation Commission, the Wyoming State Archives and Historical Department, and the Archeologist conducted during the evaluation of the alternatives in the Draft EIS, Jackson Wastewater Treatment Facilities, indicate there are no historic sites currently enrolled in, or nominated for, the National Register of Historic Places, that are located on the proposed treatment plant sites or pipeline routes. However, it should be noted that the State Archaeologist recommended in the Draft EIS that since the project will involve a significant amount of trenching for pipeline alignment, that a field survey be initiated prior to construction, and that a member of this staff be available during ditching should the survey indicate potential finds. EPA and the Town have determined that a pre-construction survey will be conducted. In the event finds are made, or artifacts are found during construction, they will be reported to the State Archaeologist for further evaluation.

SECTION IV

__ FLAT CREEK AT THE SOUTH PARK __
ELK FEEDGROUNDS

SECTION IV. ALTERNATIVES AND PROPOSED ACTION

A. DESCRIPTION OF UPDATED ALTERNATIVE

The Jackson Wyoming 201 Wastewater Facilities Plan Update considers four previously undiscussed alternatives for providing an adequate level of wastewater treatment for the study area. The four alternatives are:

Alternative 1 - Aerated lagoon with rapid infiltration at South Park Upper Bench site.
Alternative 2 - Oxidation ditch at South Park Upper Bench site discharge to Flat Creek.
Alternative 3 - Aerated lagoon with rapid infiltration Lower discharge to Flat Creek.
Alternative 4 - Oxidation ditch at South Park Lower Bench site discharge to Flat Creek.

The report also presents the two alternative South Park pipeline alignments that the design engineer evaluated.

The "No Action" alternative was considered in the Facilities Plan Update, but dismissed for the same reasons cited in the Draft EIS. These reasons included:

- Continued water quality degradation
- Escalating costs by further delaying the project.
- Need for an overall solution to the cost effective wastewater treatment problems experienced in Jackson

Six additional alternatives were also considered in detail in the Draft EIS. While several of these alternatives presented practical solutions to the wastewater problems experienced by the Town of Jackson, they were not politically acceptable and would not, according to Town officials, meet local long term wastewater treatment needs.

1. Treatment

Two alternative methods of treatment were evaluated in the Facilities Plan Update, and their relative impacts on both surface and ground water resources analyzed in the Facility Plan Update. The required level of treatment is dependent upon the ultimate point of discharge. One treatment method proposed provided secondary treatment plus nitrification through use of an oxidation ditch system. This alternative would require year round effluent discharge to Flat Creek. The design engineer states that with the oxidation ditch process, "all parameters (discharge) can be met on a year round basis." The critical parameter considered in the alternative is the toxicity of ammonia nitrogen to fish and other species. The reader is referred to the Draft EIS for a more complete discussion of ammonia-related water quality problems. The EPA document A Comparison of Oxidation Ditch Plants to Competing Processes for Secondary and

Advanced Treatment of Municipal Wastes (EPA 600/2-78/051) presents an evaluation in the oxidation ditch system including nitrification. This report indicates that ammonia removal rates in the 90% plus range are readily attainable. The proposed discharge limit for ammonia at Jackson is 10 milligrams/liter (mg/l) (Appendix B). Assuming an influent (raw sewage) ammonia nitrogen strength of 25 mg/l (page V-2 Draft EIS) only 60% ammonia removal would be required to meet permit requirements. Effluent ammonia concentration measurements were to be made on a monthly basis for the existing wastewater facility. Table 6 presents a monthly summary of this information from January 1977 to January, 1979. As indicated, the present mechanical system is not capable of consistently meeting the proposed 10 mg/l standard.

The major problem in meeting this requirement with an oxidation ditch treatment process occurs in the winter, when nitrification in the oxidation ditch can be severely affected by extreme cold. During this period (January and February), it is possible that the effluent from an oxidation ditch may exceed the ammonia requirement in the Jackson area.

The second alternative proposed by the design consultant would completely eliminate the need for surface water discharge from May to October 14, by relying on aerated lagoons followed by rapid infiltration to ground water as a final disposal process. The ammonia toxicity problems related to a surface water discharge are eliminated and the effluent flow is confined to land disposal. During the October to April period the permit allows an average ammonia nitrogen discharge of 25 mg/l. Because toxicity of ammonia is lower at cold temperatures, the EPA determined that a higher loading was acceptable. No discharge to Flat Creek would be required with this alternative provided that the infiltration basins can be operated to avoid icing. In the event severe icing prevents the use of the basins, any discharge from the lagoons would be required to meet instream standards for ammonia.

Alternative 1

Alternative 1 utilizes an aerated lagoon/rapid infiltration system at the Upper Bench site. A winter discharge line would be provided to Flat Creek in the event the infiltration basins are not operable during the winter months. Discharge to Flat Creek during the winter months will not require disinfection. No discharge during the recreational months (May through October) would be permitted. The lagoon system would provide an adequate level of treatment to allow the infiltration basins to operate properly with a 10-day dosing cycle between applications. As shown by the designer, the facility would consist of a three-celled system with the first two cells being aerated, and the third serving as a three-day storage basin for dosing the rapid infiltration basin. A seven bed infiltration system would be constructed to contain a day and a half of effluent each. Figure 2 shows the general layout and location, as developed by the design engineer.

TABLE 6

EFFLUENT AMMONIA CONCENTRATION
JACKSON WASTEWATER TREATMENT PLANT

	Ammonia-N Concentration mg/l		
	Minimum	Average	Maximum
January 1977	13	16	20
February	12	12	13
March	10	12	13
April	12	-	17
May	10	13	14
June	8	12	16
July	17	-	23
August	14	15	21
September	27	28	30
October	11	16	18
November	24	26	28
December	13	-	15
January 1979	10	11	14

The upper bench site consists of approximately 50 acres, essentially all of which would be utilized in the proposed configuration. No additional area is readily available for future expansion of the system. The site appears to have adequate soils conditions to operate the infiltration ponds and depth to ground water is sufficient to provide relatively problem free construction and reliable operation.

Alternative 2

The second alternative utilizes an oxidation ditch at the Upper Bench site (Figure 3). This system requires only a small portion of the total available land area (less than 5 acres), but a reliable sludge disposal site must be secured. The treatment site is of sufficient size that any future expansion could be accommodated. The Facilities Plan Update suggests that a 320 acre site be developed from surrounding dry farm land for this purpose.

The final discharge to Flat Creek will be required to meet the effluent limitation presented in the draft National Pollutant Discharge Elimination System Permit (Permit No. WY-0021458). A properly operated system of the type proposed should provide the level of treatment required, given that the requirements change in winter allowing a less stringent level of ammonia removal (see Appendix B).

The mechanical system proposed is more energy intensive than an aerated lagoon system. This system would require both chlorination and dechlorination during May through September to satisfy recreational contact water quality requirements.

Alternative 3

The third alternative identified by the design engineer proposes an aerated lagoon and rapid infiltration system at a Lower Bench site, adjacent to the State's Elk Feedground. (Figure 4). The system proposed is similar to Alternative 1, but may be more difficult to construct and operate due to high groundwater in the area. It will be necessary to utilize imported material for construction of the lagoon and infiltration basin. As indicated in the Updated Facility Plan, excavation would produce several small lakes connected by Flat Creek. The facility plan points out that these lakes and island would be managed for waterfowl and wildlife habitat. A discharge line to Flat Creek would be constructed to allow disposal of treated final effluent during winter months when the rapid infiltration system may not operate due to icing conditions.

Alternative 4

Alternative four utilizes the oxidation ditch mechanical system with a continuous discharge to Flat Creek at the Lower Bench site (Figure 5). The process will be required to meet all the requirements outlined in the draft discharge permit. A suitable sludge disposal site would need

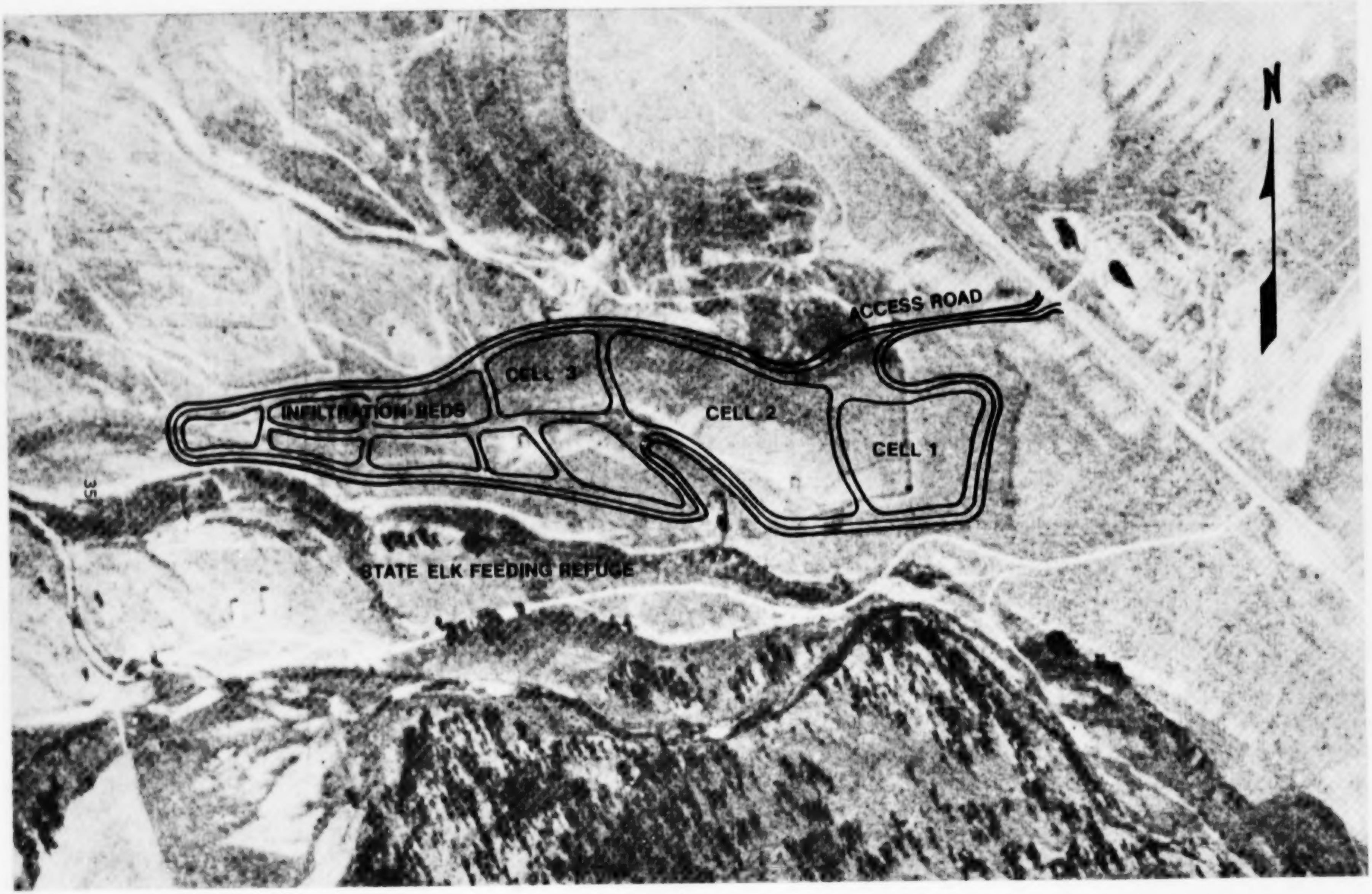
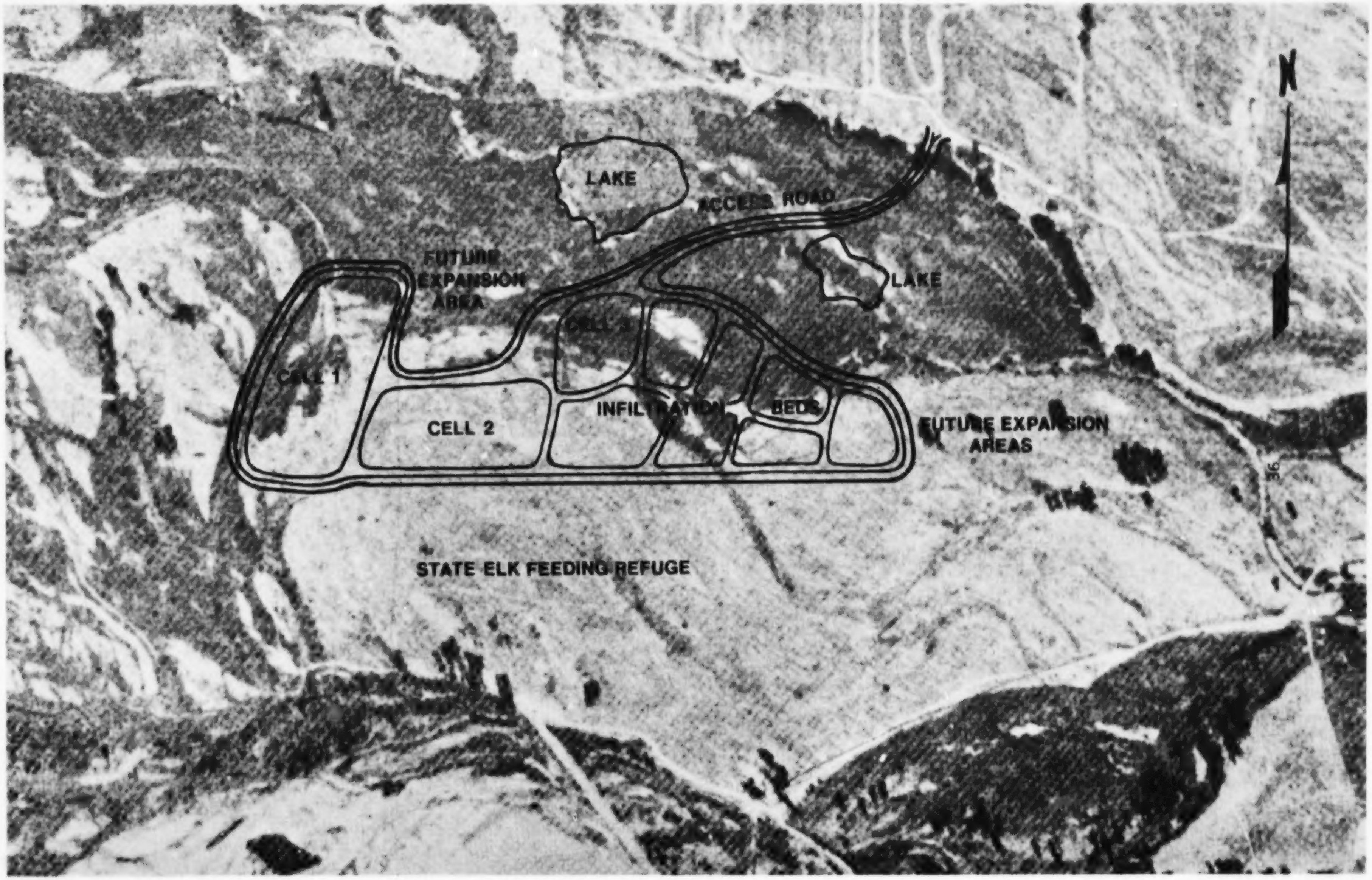

N
ACCESS ROAD
CELL 1
CELL 2
CELL 3
INFILTRATION BEDS
STATE ELK FEEDING REFUGE

FIGURE 2

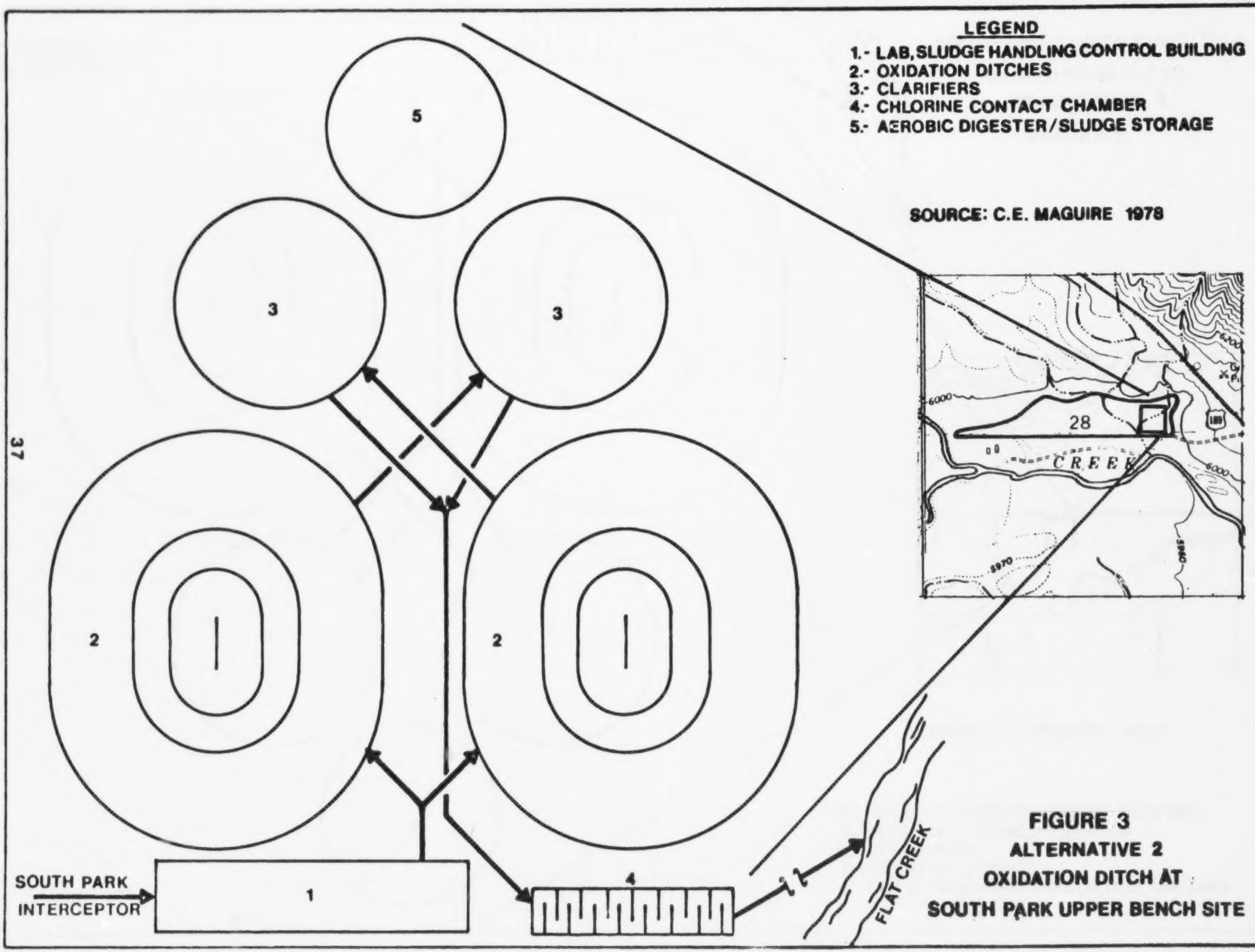
ALTERNATIVE 1 - AERATED LAGOONS/RAPID INFILTRATION SYSTEM
AT SOUTH PARK UPPER BENCH SITE



N
LAKE
ACCESS ROAD
LAKE
FUTURE
EXPANSION
AREA
CELL 3
CELL 1
CELL 2
INFILTRATION
BEDS
FUTURE EXPANSION
AREAS
STATE ELK FEEDING REFUGE

FIGURE 4

ALTERNATIVE 3 - AERATED LAGOONS / RAPID INFILTRATION SYSTEM
AT SOUTH PARK LOWER BENCH SITE

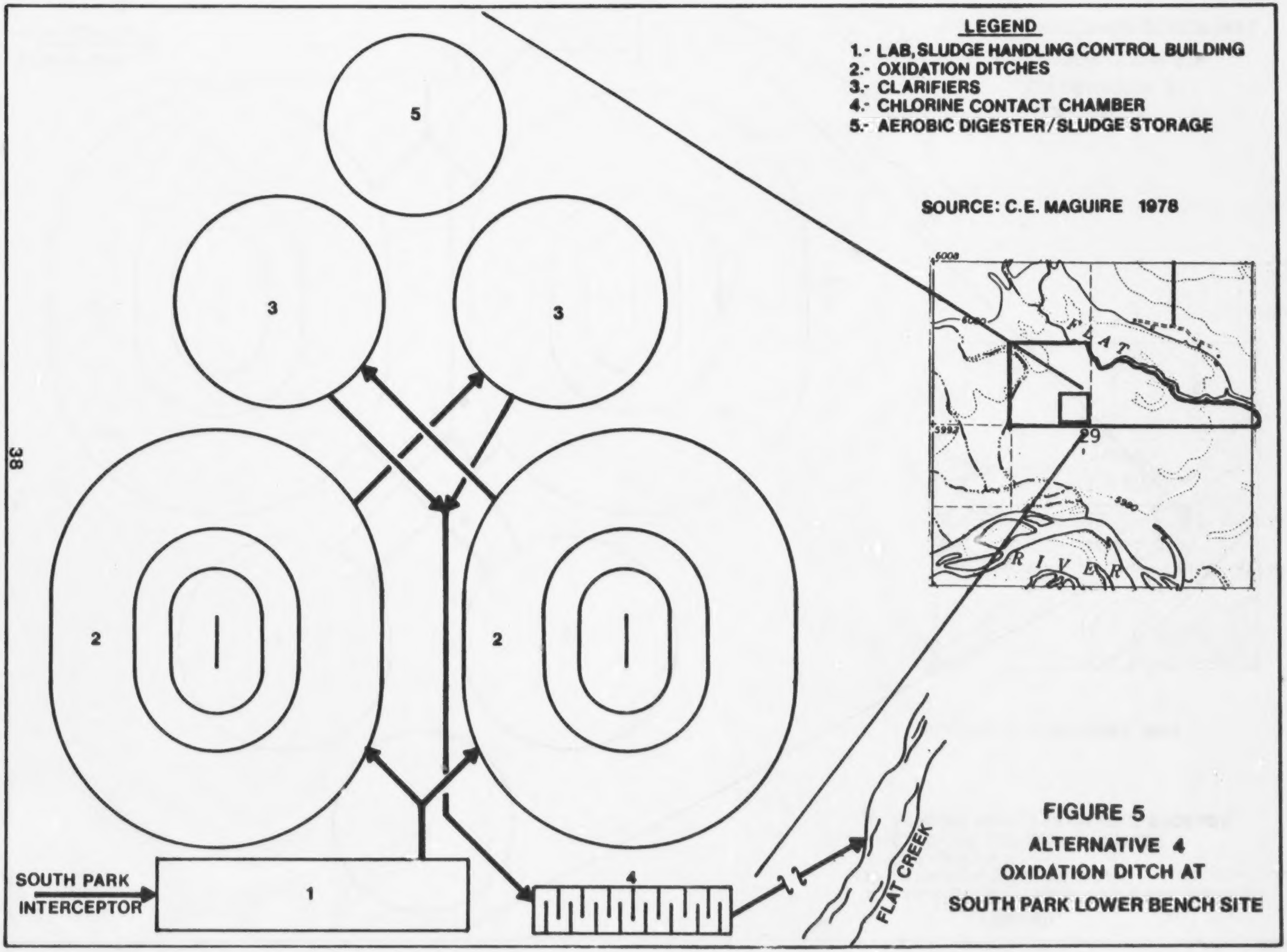

5
3
3
2
2
1
4
SOUTH PARK
INTERCEPTOR
FLAT CREEK
28
CREEK
6000
6100
5970
5960
189

LEGEND

1.- LAB, SLUDGE HANDLING CONTROL BUILDING
2.- OXIDATION DITCHES
3.- CLARIFIERS
4.- CHLORINE CONTACT CHAMBER
5.- AEROBIC DIGESTER/SLUDGE STORAGE

SOURCE: C.E. MAGUIRE 1978

FIGURE 3
ALTERNATIVE 2
OXIDATION DITCH AT
SOUTH PARK UPPER BENCH SITE


1
2
2
3
3
4
5
SOUTH PARK INTERCEPTOR
FLAT CREEK
FLAT
RIVER
29
5008
6000
5992
5980

LEGEND
1.- LAB, SLUDGE HANDLING CONTROL BUILDING
2.- OXIDATION DITCHES
3.- CLARIFIERS
4.- CHLORINE CONTACT CHAMBER
5.- AEROBIC DIGESTER/SLUDGE STORAGE

SOURCE: C.E. MAGUIRE 1978

FIGURE 5
ALTERNATIVE 4
OXIDATION DITCH AT
SOUTH PARK LOWER BENCH SITE

to be secured, and an adequate haul road would have to be constructed over Flat Creek to accommodate sludge trucks for this option. The land disposal of sludge may also present a problem during the winter months. It may also be necessary to provide provisions for on site sludge storage during the winter.

2. Interceptor Alignment

Two Alternative Alignments were evaluated in the Facilities Plan Update These alternatives included:

County Road Alternative - A route which follows the South Park County Road.

Flat Creek Alternative - This route generally follows the meander line of Flat Creek.

A third route along highway 187-189 was initially evaluated. This route was eliminated from further consideration due to excessive trench depths over much of its length, and the associated high costs.

County Road Alternative

The County Road Alternative starts at the existing Jackson wastewater plant and proceeds west until the County Road is intercepted. The alignment then follows the County Road south for approximately three miles before heading east to Flat Creek. At Flat Creek, the route would go to either of the treatment sites selected (Figure 6). The length of line would be between 31,490 feet and 32,920 feet, depending upon the site selected. The interceptor would be between 24 and 36 inches in diameter, depending upon the slope. Several construction problems have been anticipated. The easements necessary for construction may also be difficult to acquire. Extensive trench dewatering will be required for all deep cuts, and the roadway will need to be resurfaced following construction. All of these problems have the effect of increasing the overall construction cost of the project.

Flat Creek Alternative

The Flat Creek Alignment would again initiate at the treatment plant, and proceed generally south along the western bank of Flat Creek to either of the Alternative treatment Plant Sites (Figure 7). The length of the line would be 22,000 feet or 23,400 feet, depending upon the alternative selected. Line sizes will vary from 24 to 33 inches in diameter. No right of way problems are anticipated, and restoration costs are expected to be minimal. Trench dewatering would be expected to be required in the area along Flat Creek.

Cost Comparison of Alternatives

The facility plan engineer has identified the cost of the alternatives considered in his evaluation. These costs are necessary to bring the facility up to the required capacity of 3.5 mgd (see page III-2 of the Updated Facility Plan). Table 7 presents the cost estimates of the alternative treatment processes, and sites considered. Table 8 presents cost estimates for the alternative interceptor alignments.

As seen from an analysis of combinations of alternative treatment works and pipeline alignments, the aerated lagoon plus rapid infiltration at either the Upper or Lower Bench sites utilizing the Flat Creek interceptor alignment have approximately the same capital costs (Upper Bench-$4.48 million; Lower Bench-$4.41 million). The Facility Plan consultant has determined the annual operation and maintenance costs on the Lower Bench (Flat Creek) interceptor as somewhat lower. These costs are subject to final design alterations and final construction bidding costs, but are suitable for planning purposes and for comparing alternatives.

The aerated lagoon/rapid infiltration represents approximately $500,000 in capital savings over the oxidation ditch process. The lagoons also provide a savings of over $60,000 a year in operation and maintenance costs. The selection of the Flat Creek alignment to either of the alternative treatment sites will provide a capital construction cost savings of nearly $1,500,000.

3. Major Environmental Considerations of Alternatives

Three major environmental issues have arisen regarding this project. These issues include:

1. The impact on both surface and groundwater quality the selected project will have. This issue becomes a question of whether to discharge to Flat Creek, or rely on land disposal through the rapid infiltration basins.
2. The secondary impacts on land use, existing planning processes, and available services to support increased development in South Park. This issue is by far the most controversial aspect of this project, and the one most frequently discussed throughout the facilities planning and EIS processes.
3. The impacts of the alternatives on the natural scenic and physical resources of the area affected.

A detailed discussion of these issues as well as the other environmental and socio/economic considerations is presented in later sections of this document.

Water Quality Issues

The treatment alternative utilizing land disposal (rapid infiltration) will obviously have a less direct impact on Flat Creek water quality than a direct secondary discharge. Regardless of the level of secondary treatment provided, a discharge in the summer will increase the nutrient loading to Flat Creek, which in turn could promote the proliferation of

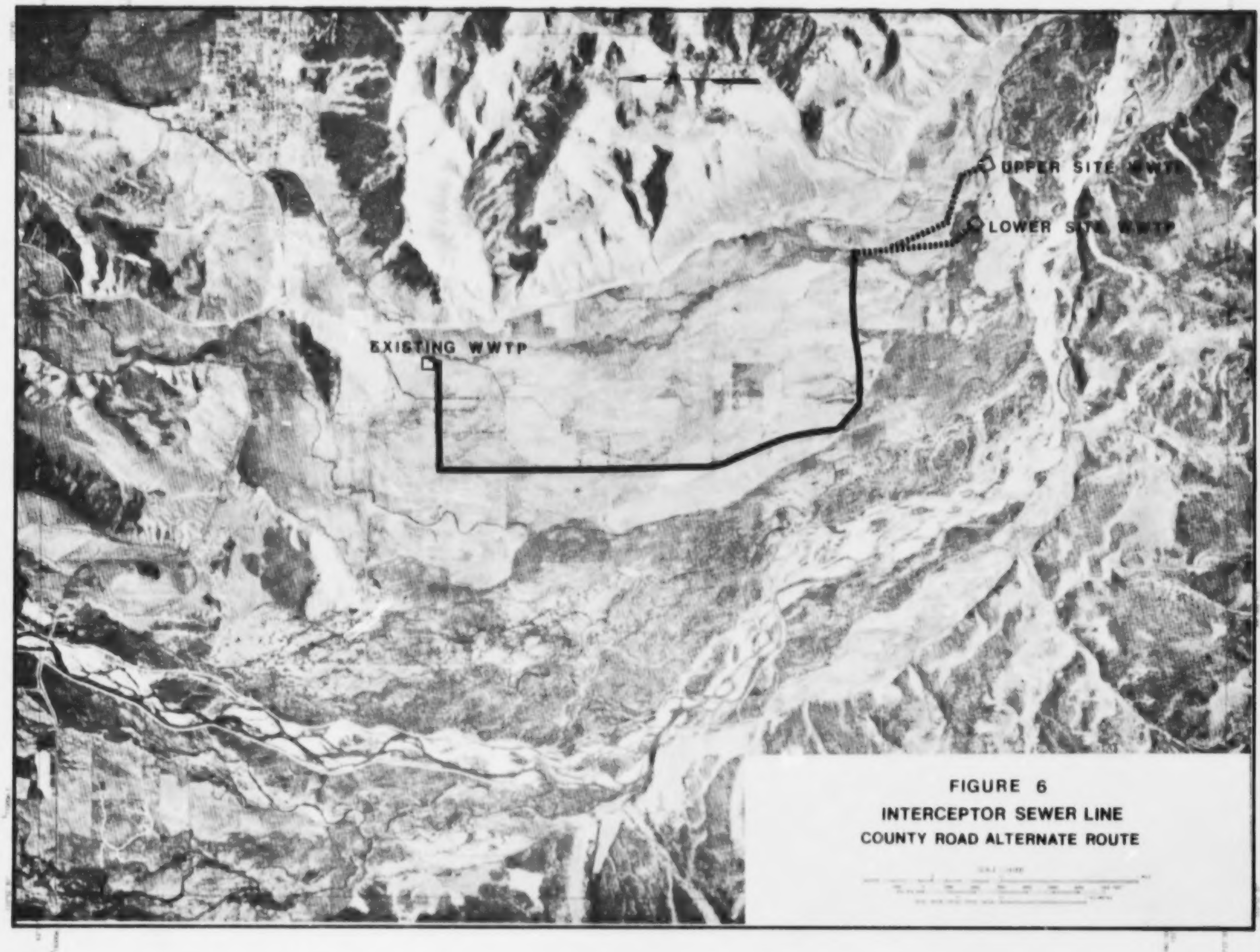

UPPER SITE WWTP
LOWER SITE WWTP
EXISTING WWTP
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
JACKSON ORTHOPHOTOQUAD
WYOMING
ADVANCE PRINT

FIGURE 6

INTERCEPTOR SEWER LINE

COUNTY ROAD ALTERNATE ROUTE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

JACKSON ORTHOPHOTOQUAD
WYOMING

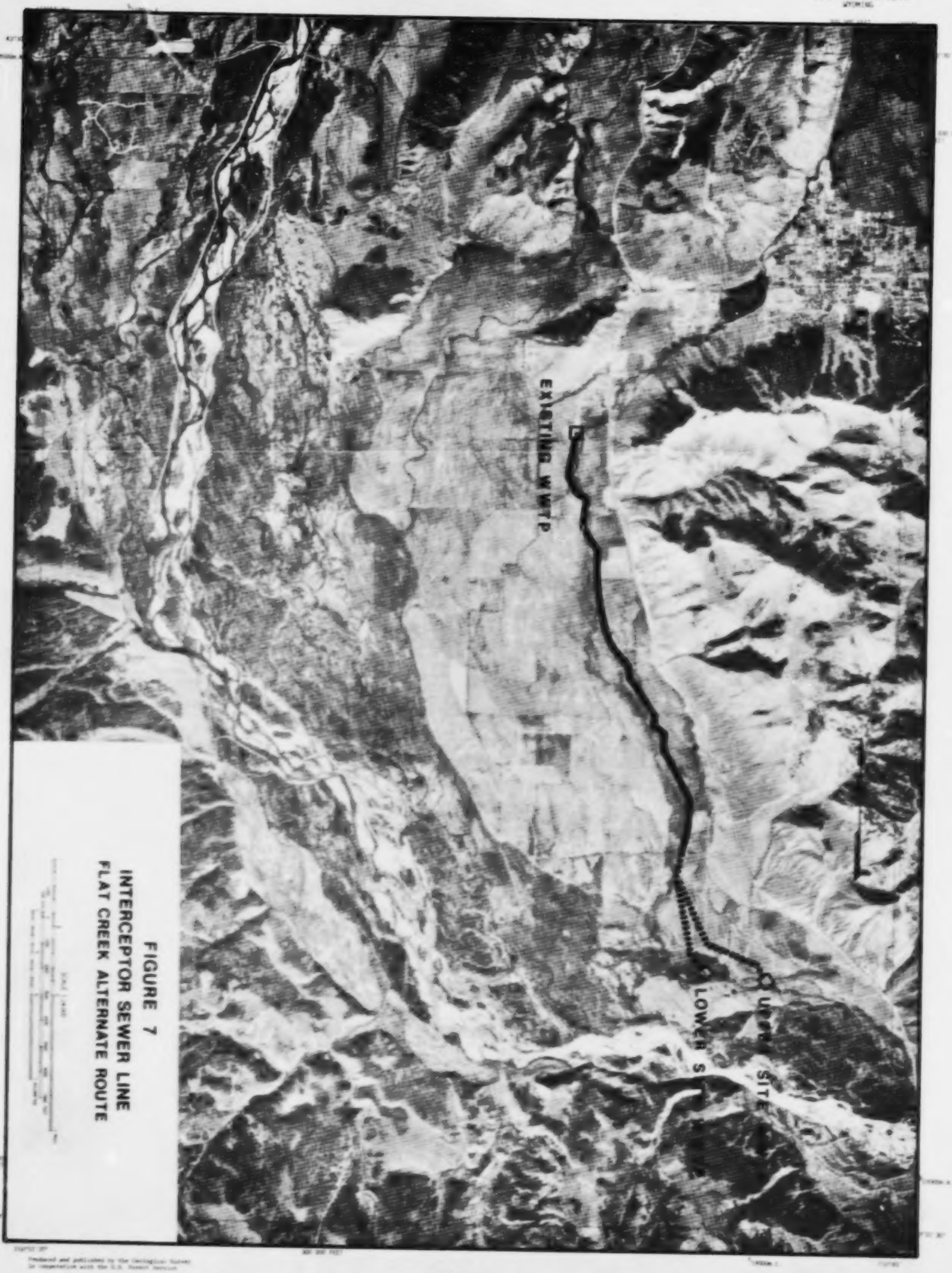

EXISTING WWTP
UPPER SITE
LOWER S
SCALE 1:24 000

FIGURE 7
INTERCEPTOR SEWER LINE
FLAT CREEK ALTERNATE ROUTE

Produced and published by the Geological Survey
in cooperation with the U.S. Forest Service

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, MENLO PARK, CALIF. 94025

JACKSON, WYO
N4322.5-W11045/7.5
1974

ADVANCE PRINT

TABLE 7 .

ALTERNATIVE TREATMENT COST ESTIMATES, TOWN OF JACKSON 201 WASTEWATER FACILITIES PLAN [1/]

Alternative No.	Alternative Description	Capital Cost ($)	Annual O/M Cost ($/YR)	Equivalent Annual Cost ($/YR)	Average Annual Cost to Town ($/YR)
1	Aerated Lagoon/Rapid Infiltration At Upper Bench Site	2,286,000	61,700	271,200	140,200
2	Oxidation Ditch At Upper Bench Site	2,903,000	123,000	389,100	198,600
3	Aerated Lagoon/Rapid Infiltration At Lower Bench Site	2,342,000	61,700	277,100	110,800
4	Oxidation Ditch At Lower Bench Site	2,801,800	123,000	379,800	189,100

[1/] Source: C.E. Maguire, October, 1978

TABLE 8.

ALTERNATIVE INTERCEPTOR ROUTE COSTS, TOWN OF JACKSON 201 WASTEWATER FACILITIES PLAN.[1/]

Interceptor Route	Capital Cost ($)	Annual O/M Cost ($/YR)	Equivalent Annual Cost ($/YR)	Average Annual Cost to Town ($/YR)
County Road Upper Bench	3,627,300	14,510	344,480	87,150
County Road Lower Bench	3,497,700	13,990	332,170	84,040
Flat Creek Upper Bench	2,197,300	8,790	208,670	52,790
Flat Creek Lower Bench	2,065,900	8,300	196,190	49,650

[1/] Source: C.E. Maguire, October, 1978 both phytoplankton and emergent vegetation and/or ammonia toxicity problems in the lower backwatered section of the creek on the State Elk Feedground. While these effects may be minimal in most years, given the right set of circumstances (warm weather, low summer flows, higher loading to the treatment plant, or a decrease in treatment efficiency), water quality degradation could occur in the lower reaches of Flat Creek.

The land disposal alternative minimizes these possibilities. The only allowable direct discharges would occur in the winter time when biological activity is restricted by climatic conditions, and ammonia toxicity is minimized due to the synergistic effects on toxicity of temperature and concentration (less unionized ammonia is formed). While groundwater quality degradation could occur as a result of land disposal, the actual impact of this is expected to be minimal given the reported high degree of groundwater movement in the area. The design engineer has projected a 5:1 water quality dilution ratio between the groundwater and infiltrated wastewater. Further studies will be performed during the spring of 1979 to verify this estimate. Regardless of the dilution rate, no potable wells are found downgradient of the disposal sites. No future development of drinking water supplies would be expected since the land is controlled as a State Elk Feedground, and all development activities are restricted.

Secondary Land Use Issues

These issues are by far the most controversial surrounding this project. Regardless of the South Park alternative selected, the development of a gravity interceptor and wastewater treatment system in the southernmost portion of South Park will undoubtedly place accelerated development pressures on this area of Teton County. Since the acceptance and use of individual wastewater disposal systems has proven to be a limiting factor to development in areas of high groundwater, the availability of central collection and treatment facilities would facilitate a high density of development. This higher level of development will in turn increase the pressure on available services (i.e., fire protection, schools, etc.), and increase the total public costs in the area.

Resource Commitment

The land being considered for potential treatment plant sites is all under single ownership, and is presently utilized for light grazing with some irrigated pasture. The sections of Flat Creek that run near the potential plant sites are on private land, and generally not accessible to the public. The closest readily accessible public land is the neighboring State Elk Feedground. While the tracts being considered as treatment sites are in the general migration area of wintering elk, it is unlikely that the specific sites themselves play a significant role in elk migration. It will be necessary to relocate one access gate to the feedground to assure unrestricted migration.

In terms of scenic compatibility, the Upper Bench site is the most intrusive. The site is visible from Highway 187-189, and from the South Park County Road area. The Lower Bench site could only be seen by the land holders surrounding the facility, and by summer visitors to the Elk Feedgrounds. Noise and human activities at the treatment facility during the winter could have some affect on the behavior of the wintering elk herd.

As discussed, several small lakes will be created at the Lower Bench site in the process of obtaining fill for berms and dikes, and the infiltration beds. It has been indicated by the design consultant that these lakes would be managed as waterfowl habitat as partial mitigation for any land disturbed during construction. Coordination with the Wyoming Department of Game and Fish will be accomplished to determine if how this area could be designed and maintained to enhance wildlife use and fisheries management. This cooperative effort will also ensure that proper precautions must be taken in constructing the lakes.

The major impact on scenic resources involves the commitment of land for the facility, and secondary impacts associated with increased development in the South Park area. The expected proliferation of high density dwellings and other building activities will, in time, have a very definite impact on the scenic resources of South Park independent of the alternative selected.

4. EPA's Preferred Alternative

After a critical analysis of the numerous documents, letters, and public testimony regarding this project, the Regional Administrator of the U.S. Environmental Protection Agency Region VIII, Denver, following lengthy deliberation with his evaluation staff, has concluded that the aerated lagoon/rapid infiltration treatment and disposal process at the Lower Bench site is the preferred alternative. This decision was based upon:

1. The need to assure maximum protection of water quality
2. Cost effectiveness
3. The need to arrive at a politically acceptable and implementable project.

It was likewise concluded that the Flat Creek interceptor alignment was the preferred alternative because it has significantly lower capital costs.

5. Mitigation Measures for Alleviating Potential Adverse Environmental Impacts of the Proposed Project

The design consultant and the EPA, through their review process have developed several mitigation measures to reduce the overall impact of the proposed project. These include measures that affect not only the natural environment but social and cultural resource impacts as well.

A planted and landscaped buffer area will be included in the final design that will shield the built up sections of the facility from neighboring property owners. All construction will be on the south shore of Flat Creek and roadways and the access bridge will be designed to minimize visual intrusion.

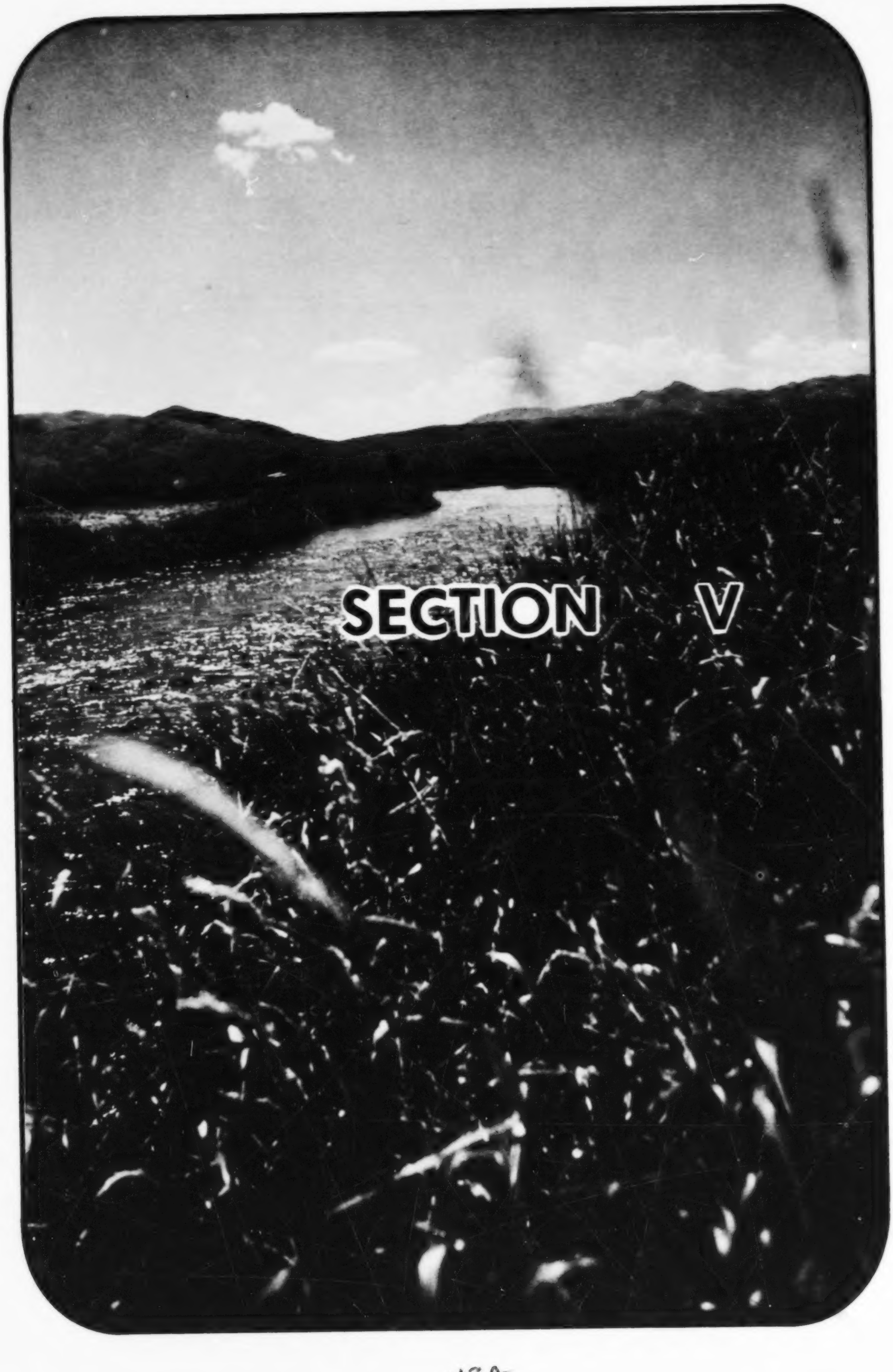
All construction scheduling will be developed in concert with the Wyoming Department of Game and Fish in order to reduce the potential impacts on the migrating winter elk herd and any fish spawning activites in Flat Creek. No construction activity will be conducted during periods that the Game and Fish Department indicate could have adverse effects on wildlife. If it appears that sufficient fill material can not be imported from a recognized and approved site for construction of the infiltration beds, it will be necessary to secure this material on adjacent land. It is proposed that several small lakes will be developed and connected to Flat Creek to maintain water quality. These lakes would be maintained as waterfowl habitat areas and remain under the ownership of the present owner.

The pipeline alignment and any areas disturbed during construction will be revegetated by the contractor prior to abandoning the site. Revegetation would be conducted under the guidance of a landscape architect, following approval by the State of Wyoming.

Groundwater monitoring wells and a surface water monitoring station in Flat Creek will be maintained by the Town to determine what effect on local water quality the facility may exert. These stations would be established prior to construction to develop the necessary background information, and the results sent to the State of Wyoming as part of the Town's self-monitoring activities. All groundwater encountered during construction of the interceptor and treatment plant will be disposed of in a manner acceptable to state and local regulatory agencies.

The Town of Jackson will submit to DEQ, for review and certification, a Best Management Practices (BMP) Plan to minimize the impacts of construction on local water quality. Upon approval of the plan by DEQ, appropriate provisions will be incorporated into the construction contract.

The provisions of the Tri-Party Agreement dated April 13, 1978, will be incorporated in their entirety as conditions of the Step III grant. The procedure for allocating out-of-city taps is due prior to operation of the new wastewater treatment system. According to the present schedule, the new system should be fully operational by July, 1980.



SECTION V

SECTION V. ENVIRONMENTAL CONSEQUENCES

A. DIRECT EFFECTS OF THE PROPOSED ACTION

Parts A and B of the following section analyze the potential direct and indirect impacts of the proposed project. Part C of the Section includes a similar discussion for the three basic alternatives. Special attention is focused on part B, which analyzes the effects of additional treatment capacity and sewer availability on local land use development patterns, and corresponding impacts on public services and utilities. Wastewater facilities can influence and even direct land use. This is particularly the case in the Jackson area where high groundwater conditions limit development on individual waste disposal systems, and these limitations are a primary factor in the County's overall growth policy, as defined in the Teton County Comprehensive Plan and Implementation Program.

1. Impacts of the Proposed Action on Fish and Wildlife.

Discussions with the Wyoming Game and Fish Department (WG&F) indicate general agreement with the proposal to remove the existing wastewater facility discharge from Flat Creek. Consensus is that this situation will have a generally positive effect on the existing fishery. However, there is concern in the Department over the proposal to excavate material from the east bank of Flat Creek to construct the infiltration beds. Although the project, as proposed, provides the potential for creating new fish and wildlife habitat, a number of considerations will need to be addressed prior to excavation at the site. The Facilities Plan Update does not provide specific estimates of the amount of fill material which would be required, or dimensions for the proposed lakes. The WG&F has recommended that the Town consult with the Department prior to any work in the streambed. This consultation will also be required for a Corps of Engineers Section 404 permit, in the event the stream channel is disturbed. However, current plans call for all work being performed above the mean high water mark of Flat Creek. Long-term indirect impacts of the proposed action on important fish and wildlife resources are mainly associated with the loss of critical habitat due to growth inducement and changes in land use. These effects are discussed in more detail in part B of this section.

2. Water Quality Impacts

Primary impacts of construction of an aerated lagoon/rapid infiltration system at the Lower Bench site (Flat Creek interceptor route) would be associated with potential short-term surface and groundwater degradation during excavation work for interceptor alignment and construction of the lagoons, and long-term improvements Flat Creek water quality due to removal of the Jackson treatment plant discharge to the watercourse. Where high water tables persist during the construction season, disruption of soil for interceptor installation will create turbidity problems in the groundwater. Similar problems will probably occur at the lagoon site, where groundwater is 0.6 to 6.2 feet below the surface. These conditions will require that adequate controls are imposed to ensure water removed from the pipeline trench and the lagoon site will be properly treated to reduce sedimentation prior to discharge to Flat Creek and/or disposal by reuse for irrigation. Potential controls include screened wells to prevent intake of soil particles by the dewatering pumps, sedimentation basins to remove suspended solids before discharge to streams, diffusers to reduce soil erosion and ditch bank slumping, buffer areas, and careful design and construction specifications and inspections during construction.

Flat Creek water quality can be expected to improve as a result of construction of the proposed aerated lagoon/rapid infiltration system which does not involve a discharge (except during service winter icing conditions). Although Flat Creek is presently designated a Class II stream, existing water quality is impaired due to the Jackson treatment plant discharge (Section III). The no-discharge alternative will result in significant decreases in BOD_5, total suspended solids, fecal coliform, total residual chlorine, ammonia nitrogen, and total phosphate levels in Flat Creek.

Some degradation of groundwater quality would be expected to occur as a result of the high groundwater table conditions at the site. Removal efficiencies for these parameters provided by selected rapid infiltration systems are identified in Appendix C, Table 1, of the Facilities Plan Update. From this data, nitrogen would appear to be the limiting parameter for aerated lagoon pre-application systems. The importation of fill material for construction of rapid infiltration beds would minimize these effects. The 5:1 dilution factor identified by the design engineer in the Facilities Plan Update would appear to be adequate to provide the required treatment levels. However, careful design and operation management will be required to avoid problems of groundwater mounding. Although no potable water supplies are located downgradient from the proposed site, a monitoring network will be installed and that routine sampling will be required to ensure adequate treatment is provided. The 0.1 mg/l instream phosphorus criteria recommended by the Teton County 208 Plan as a limiting factor with respect to potential eutrophication on Palisades Reservoir will be considered in this monitoring program. Although this criteria has not been approved as a standard by DEQ, the recommended limit is intended to serve as a guideline for setting discharge permit limitations and developing best management practices for the control of nonpoint pollution sources.

3. Air Quality and Odor

The primary impacts of the proposed action on air quality in the Jackson study are are related to odor reductions at the existing treatment plant, and short-term increases in particulate levels during excavation and construction work on the lagoons and infiltration beds. The overloaded conditions of the existing treatment facility, and problems associated with sludge handling, have resulted in odor problems. A properly aerated lagoon/rapid infiltration system would not be expected to create odor problems. The proposed location for the treatment facility is relatively remote, further minimizing potential odor problems. Reducing construction easements, dust abatement practices during excavation, and revegetation of the interceptor trench alignment following installation will minimize increases in particulate concentrations associated with the project.

4. Economic Impacts

The direct economic impacts of a wastewater treatment system are measured in their capital construction costs and the annual operation and maintenance liabilities. For many communities the availability of local matching funds for capital construction may be the most important single factor in determining the "best" alternative system. Unfortunately, as many communities have discovered, the annual cost and reliability problems associated with many systems may play a more important role in the actual cost of providing wastewater services. Systems which are highly mechanical and energy intensive are expensive to operate and require a much higher degree of operations attention and maintenance skills. They also tend to be less reliable for smaller isolated communities where parts, and specialized repair and service personnel may not be readily available.

The EPA's Construction Grant Program (PL 92-500) normally will fund 75% of the eligible cost for the planning, design and construction of municipal wastewater systems. Under the 1977 amendments to the Clean Water Act, communities that install "Alternative or Innovative" treatment or disposal systems may be eligible for an 85% grant for that portion of the system that qualifies as "Alternative or Innovative." The usual eligible costs (75%) of a wastewater system are evaluated on a case by case basis as discussed in the draft EIS, but normally it includes all items except such things as land, excess capacity and demolition of standing facilities. To be eligible for 85% funding, EPA will carefully evaluate all aspects of the proposed system and accept only those items that involve "Alternative and Innovative" technology. In this case, only those portions of the system directly related to rapid infiltration will be eligible for 85% funding.

As pointed out in the draft EIS, EPA participation in funding projects is based upon the availability of federal grant funds within the state. The Jackson wastewater facilities is currently high enough on the priority list to ensure a 1979 funding commitment. The delay of approximately 22 months (May 1977-February, 1979) between the issuance of the draft EIS and this document has resulted in an increased project cost of between 0.5-1.0 percent per month. Table 9 presents the direct cost that the Town of Jackson would have to assume, including both capital and O & M, for the recommended project and the three alternatives being considered at this time. These costs consider only the Flat Creek pipeline alignment due to its significantly lower cost and the anticipated availability of land and easements.

TABLE 9.

COMPARISON OF DIRECT COST OF ALTERNATIVES[1] (SOURCE: C.E. MAGUIRE, OCTOBER, 1978)

Alternative[2]	Capital Cost (Million $)	EPA Share 75% and Anticipated 85%[3] (Million $)	Local Share (Million $)	Annual O & M Cost (Thousand $)	Present Worth[4] O & M Cost (Thousand $)	Total Present Worth, Town (Million $)	Life of Proj. Cost Per P.E. ($)	Present Worth Ranking
Alt. 1	4.483	3.36	1.120	70.5	603.4	1.723	92	1
Alt. 2	4.968	3.726	1.242	131.3	1,123.8	2.366	127	4
Alt. 3	4.539	3.404	1.135	70.5	603.4	1.734	93	2
Alt. 4	4.866	3.650	1.216	131.3	1,123.8	2.340	125	3

[1] Estimated from available data

[2] With Flat Creek Alignment

[3] Where applicable

[4] @ 8% annually for 15 years

Table 9 presents the cost information for the Proposed Project and the alternatives for the 1995 design flow. In terms of actual cost per Population Equivalent (P.E.) not differentiated between residential, commercial, or tourist in the Town of Jackson, the aerated lagoon/rapid infiltration systems (alternative 1 and 3) are the least expensive. There appears to be very little difference in cost between the two treatment schemes (aerated lagoon vs oxidation ditch) when taken on a present worth cost to the Town of Jackson. The difference in the direct economic impacts between the two are primarily a function of the higher O & M cost associated with the more mechanically intensive processes.

5. Affected Property Owners

During the course of preparing this document, discussions were conducted with the Town Engineer, Town Attorney, Mayor, property owners whose land would be involved in pipeline route easements, and a representative for the owner of the proposed site. The property owners of the land area adjacent to the proposed site were interviewed regarding the treatment plant location. During the internal review period for the Final EIS, discussions were conducted with the second land owner whose property is located in close proximity to the proposed site.

In summary, dicussions with the Town Engineer and Attorney, and information from their files show that all of the involved property owners of land which would be required for pipeline alignment have indictated they would consider providing without fee, the necessary easement which the Town has identified will be required for the route. It should also be noted that their respective willingness included a formal application for annexation of the same easements to the Town of Jackson. According to the Town Engineer, and Attorney, the parties have since indicated the necessary easements will probably be donated to the Town of Jackson, regardless of whether or not the lands are annexed. The owner of the proposed Lower Bench site has also officially notified the Town that he will consider providing the 40 acre site and necessary easements without fee. This notification also included an official request for annexation of the indicated lands.

Both property owners of land adjacent to the treatment plant location have indicated concern over the effect the facility may have on the value of their land, as well as objections to potential odor problems and landscaping provisions identified in the Facilities Plan Update. As a result of these objections, additional landscaping is planned for the treatment plant to reduce visual impacts. Special provisions will also be incorporated into the design of the facility and the operation and maintenance manual to control odors. However, the second property owner interviewed during the internal review of the Final EIS has indicated that if the proposed Lower Bench site is approved, legal action will be initiated to prevent construction of the facility at the site.

6. Positions of Local Officials

Efforts were made during the preparation of this document to interview and/or review records on position statements of local Town of Jackson and Teton County elected and appointed officials, in order to identify a general consensus of attitudes concerning locating the proposed facility at the Lower Bench site. The Mayor of Jackson, several Council Members, the Town Attorney, a majority of the Teton County Commissioners, several County Planning Commission Members, and the Town Engineer and Town and County planning staffs were interviewed concerning the proposal. Local newspaper files were also researched to determine attitudes and position statements which were made in recent months concerning the treatment plant location, the Tri-Party Agreement, and the effects of these issues on the Teton County Comprehensive Plan.

In general, the consensus was that both Town and County officials recognized the need for improved wastewater facilities in the Jackson area. It was acknowledged that growth in the area was inevitable, and probably would occur at a rate greater than that projected by Livingston and Associates during the development of the Comprehensive Plan. Reasons given for the higher anticipated growth rate included a number of pending development proposals associated with the local recreation industry, the fact that the area is a "very attractive place to live," and the relatively strong economy currently experienced in the area.

The main point of contention during these discussions and the newspaper review concerned the proposed location of the wastewater treatment plant. Opinions were definitely polarized, with about half the people interviewed contending that higher density development in South Park was unavoidable, and in fact desirable. Major pending development proposals such as the planned Teton Village and Jackson Hole Ski Area expansions were viewed as stimulants to the local economy. The conflict in this viewpoint appears to be that while individuals expressed they generally favored this level of development, they also wanted to see the County develop in accordance with the Comprehensive Plan. These individuals felt the eventual tap-in rate developed by the County for out-of-city sewer hook-ups would provide adequate safeguards to ensure "managed growth."

The other half of the opinions viewed the proposed location as a "government subsidy to growth," and saw major conflicts between the location of the plant and the continued effectiveness of the Teton County Comprehensive Plan and Implementation Program. The whole sewer issue was viewed as a "high growth vs. managed growth" question.

As a result of the discussions held by the EIS consultant with local elected and appointed officials, the following compendium of statements recorded during the interviews is provided to further demonstrate the apparent polarization within the community concerning the proposed location and treatment capacity of the Town of Jackson wastewater treatment plant:

- Future development in the Jackson area should occur in compliance with the Comprehensive Plan, and be provided central sewer.
- The proposed location for the treatment plant will effectively destroy the Comprehensive Plan.
- New growth in Jackson and vicinity should occur contiguous to existing growth, within the defined sewer service area where other necessary services and utilities can be provided at reasonable costs.
- The facilities plan does not define a service area.
- The Comprehensive Plan designates the lower South Park area for low density development. These densities are based on physical limitations, and local attitude preferences.
- Once central sewer is available in the lower South Park area, higher density development will be feasible. It is probable that the existing Comprehensive Plan will need to be totally revised to better accomodate this level of development.
- The County has no desire to get into the sewer business by funding additional capacity at the treatment plant to accommodate potential high density development in lower South Park.
- In reality, the issue is a question of whether EPA is funding a wastewater system for the Town of Jackson or Teton County.
- The Tri-Party Agreement prepared by the Town of Jackson, Teton County and EPA will effectively limit out-of-city tap-ins and promote managed growth.
- The present Agreement includes no provisions for limiting out-of-city hook-ups. There is in fact no guarantee that the County will not provide additional capacity at the plant to promote development in the outlying areas of the County as a result of pressure from local developers.
- Growth, and in fact, urbanization of the Jackson area, is inevitable.
- People live in the area because of its amenities and lifestyles.
- It is time to make the commitment for improved sewer service in the Jackson area, while federal funding assistance and free land for the treatment facility is available.
- The whole facilities planning program is a problem. It is like pumping an injured athlete full of pain killer to get him through an important game, and worrying about the end result later.

7. Floodplain Hazards

The National Flood Insurance Program has established the 100-year flood as the basis for determining minimum land use measures for construction or substantial improvements to existing development in flood hazard areas. Executive Order 11988 (issued May 24, 1977) and EPA Flood Insurance Requirements (PRM-77-1) define requirements for flood-proofing of wastewater treatment facilities in accordance with the National Flood

Insurance Program. The U.S. Army Corps of Engineers has completed a Special Flood Hazard Information Survey for the Snake River and vicinity (Corps, 1976). The results of this study indicate that neither of the sites considered for locating the Town of Jackson wastewater treatment plant are in the 100-year floodplain. However, the proposed site does lie within the 500-year floodplain of Flat Creek. Revegetation of the exposed diking will be performed to protect the dikes from any low velocity flooding that could occur.

8. Aesthetics and Scenic Problems

The Lower Bench site is in a relatively undeveloped area of South Park. Construction of an aerated lagoon/rapid infiltration system at the site will involve the conversion of approximately 40 to 50 acres of agricultural land for the lagoons and related facilities. This will require that provisions are included in the planning stages of the facility to reduce visual impacts. Approximately $60,000 has been included in the Facilities Plan Update for landscaping and fencing. A number of additional methods to minimize visual impacts during construction of the facilities should be considered in developing the site, due to the scenic nature of the area and its close proximity to the Elk Feedground. These include limiting clearing to minimize erosion and reduce visual impacts of a denuded landscape; planning the earthwork and lagoon and infiltration bed locations to fit the drainage patterns to the best degree possible; avoiding the unnecessary removal of trees and surface vegetation where feasible; revegetating exposed slopes at the site and the interceptor route following construction; and development of a site plan design to maximize shielding of the treatment works from adjacent properties.

B. INDIRECT EFFECTS OF THE PROPOSED ACTION

The availability of sewers can be an incentive to development. Routing, sizing and timing of interceptor construction can also be an important tool for guiding residential development as a part of the overall comprehensive plan. This part of Section V identifies the major potential land use changes, and public services and utilities investment likely to occur as a result of, or be facilitated by, the availability of central sewers. Other indirect or secondary impacts described in the discussion are related to these changes, and involve the effects of increasing encroachment on critical wildlife habitat, impacts on fisheries resources associated with long-term water quality degradation, and energy and natural resource commitments. Due to the numerous variables present in the economy of a tourist-related economy like Jackson, and the extreme difficulty in forecasting long term secondary environmental impacts of providing improved wastewater facilities to an area, the analysis is based on discussions with local elected officials and involved regulatory and planning agencies. The situation is further complicated by the uncertainty of future policy decisions concerning the tap-in rate which must be determined by the Town of Jackson and Teton County. The results of several case studies on the development of large scale wastewater treatment facilities and major interceptors were also studied to assist the EIS consultant in preparing the analysis.

1. Growth Inducement and Land Use Changes

Numerous studies have demonstrated that sewer availability can result in significant changes in development patterns and land use in an area (CEQ, 1976; CEQ, HUD, EPA, 1974). As previously discussed in the draft EIS, new development in the Jackson area will be attracted to areas served by sewer for a number of reasons which include:

- Land development restrictions in the area are presently based primarily on physical constraints which limit the use of on-site systems (i.e., high groundwater, soils, steep slopes). The availability of sewers would effectively remove these constraints.
- Several major development proposals, the most important of which is the proposed Jackson Hole Ski Area expansion, are likely to result in significant pressures for providing housing to serve the facility's support personnel.
- The high costs of land in Jackson and South Park ($2,600/acre to as high as $60,000/acre for subdivision land located in the County, and $93,000/acre in Jackson) makes low density development unattractive.
- Evidence exists that some groundwater contamination is occurring in the County due to improperly functioning septic tanks.

This situation is complicated by the fact that no official wastewater facilities service has been defined or adopted for the 20-year planning period (1978-1995); the number of out-of-city tap-ins have not been agreed upon by the Town of Jackson and Teton County; and the Teton County Commissioners (1979 term) have indicated in interviews and position statements prior to the recent election that a consensus exists to develop the South Park area to accomodate future growth.

The Teton County Comprehensive Plan and Implementation Program, which was adopted by the County in 1977, is comprised of three major elements which include plan goals and policies, a land use component, and a scenic preservation element. Goals and policies in the plan stress compact urban development, retention of the rural residential/agricultural atmosphere in relatively undeveloped areas of the County, protection of physically limiting areas (i.e., floodplains, hillsides, etc.), protection of important fisheries and wildlife habitat, and scenic preservation. Density requirements for the land use element are defined according to existing physical limitations by development districts with supporting performance standards. The scenic preservation component identifies priorities for future acquisition.

The major long term effect on existing land use and growth in the study area of constructing a wastewater treatment facility at the Lower Bench site will most likely be increased pressure on the County's Comprehensive

Plan for allowing higher density development in areas of South Park where such development is currently restricted by wastewater constraints. The majority of this portion of the County is designated R-A-3 (1 unit/3 ac.) or R-A-6 (1 unit/6 ac.). These density provisions are based primarily on groundwater condand tions and septic tank limitations.

The Town of Jackson includes approximately 1,160 acres of land. According to a 1977 land use inventory prepared as an element of the overall comprehensive plan, there were 350-400 vacant lots in the Town, and 260 additional acres of land available for residential development within the town limits (Livingston and Associates, 1976). Assuming an average overall density of 3 units/acre, this land would accomodate approximately 1980 new residential units. Although the County Comprehensive Plan designates the Jackson Planned Expansion District (approximately 540 acres of land) as the secondary urban development area, the availability of this land for urban expansion is still in question, and there has been discussion concerning the feasibility of relocating the expansion area in closer proximity to the treatment plant site location. This area also has not been identified specifically as being located within the Town of Jackson wastewater facilities service area. In order to meet the population needs identified in Table 5 for the projected combined 1995 populations of Jackson and Teton County (approximately 18,953), an estimated 4,500 new housing units will be required in the County. This estimate becomes more realistic when considering the potential effects on housing of the proposed Teton Village expansion program.

Within the Town of Jackson, undeveloped land is limited and costs are substantially higher than in the outlying areas of the County for comparative lot sizes. According to local appraisers and planning officials, for example, the average cost for a 50 x 150 ft. residential lot within the Town limits varies from $25-30,000. Land costs for larger (.25-.33 acre) residential lots south of the Town (Rafter J Development) are currently ranging between $18-25,000. Further south in the County at South Park Ranch, the cost for 2.5 acre lots is ranging between $30-35,000. The cost of land in the Town of Jackson has increased sharply since 1974, when the Town adopted a policy which required developers to provide the necessary sewer and water lines and roads for new developments. These costs have been passed on to the buyer. With the availability of central sewer in the South Park, higher density development is likely to occur. Land owners will be able to subdivide their property in smaller lot sizes, reducing comparative costs to the buyer.

In summary, as lower land costs and sufficient sewer capacity in the outlying areas of South Park are likely to make much of the area more attractive to local developers, the existing agricultural and undeveloped land will probably be replaced by residential development. This situation will undoubtedly result in the need to refine the existing Teton County Comprehensive Plan and Implementation Program to better accomodate a more intensive use, particularly as related to provisions which would place more of the burden for providing necessary services and utilities on the developers. Town and County officials may also find it necessary to stage future interceptor extensions and sewer hookups to the proposed treatment facility to minimize impacts on land use, and related public services and utilities investments (these investments are discussed in more detail in the following subsection). Provisions of the Tri-Party Agreement formulated by the Town of Jackson, Teton County and EPA, which would allow the County to fund additional treatment capacity at the plant, may make these types of considerations necessary to ensure that growth pressures do not result in uncontrolled development patterns.

2. Impacts on Public Services and Utilities

As briefly discussed in the Summary section of this document, land use changes resulting from the availability of central sewer facilities invariably result in substantial additional requirements for public services and utilities. These services and utilities include schools, police and fire protection, public water systems, highway and secondary road networks, and power supplies. The investment required to supply these necessary facilities affects the public, either from the standpoint of increased taxes to support the needs, or from increased costs for land provided the facilities, which is passed on to the buyer from the developer. For this reason, local governments should have a legitimate concern regarding secondary public costs associated with providing sewers.

Teton County service expenditures are higher than other Wyoming counties, due mainly to the larger number of tourists, and seasonal and temporary workers and residents. This results in rather high per capita costs which ranged from a low of 112 percent higher than the state average in 1972, to a high of 175 percent, the average in 1968.

The public service in the Jackson study area most likely to be adversely affected by construction of an aerated lagoon/rapid infiltration system at the Lower Bench site is schools. School attendance in Teton County School District No. 1 has increased an average of 1.93 percent a year during the past ten years. This growth is well above the national average. Expenditures for school facilities have also increased 165 percent during this period. The Teton County Commissioners went on record in opposition of the proposed Jackson Hole Ski Area expansion. In an October 19, 1978, correspondence to the supervisor of the Bridger Teton National Forest, the Commissioners cited a number of potential growth-related problems with the expansion as proposed. These problems generally centered around concerns over the surrounding communities' ability to provide services through Phases II and III of the project, particularly adequate school facilities. This particular problem is vividly demonstrated by the financial difficulties recently encountered in funding the construction of the new high school.

Discussions with District personnel indicate that locating the treatment plant at the proposed site will probably require that a new elementary school be built in lower South Park within three to four years. This facility would be required to service grades 4 and 5, which are projected to be the most highly impacted at that time. It is also likely that the District will be forced to go to a double bus schedule to provide adequate service. This situation creates a special burden on residents of Teton County, due to the fact that the County does not receive substantial revenues from mineral resource taxes, and the assessed valuation for the County is low due primarily to the high proportion of federal lands. Too rapid growth in the study area could in fact result in a situation where construction dollar needs exceed the District's bonding capacity, and operating funds exceed the ability of the local tax base to generate them. During the past ten years, property tax assessments in the County have increased roughly 159 percent. Approximately half the increase is attributed to inflation, while the balance is due to improvements in services (TCGSC, 1978).

Other public services and utilities most directly affected by the proposed project include police and fire protection, and domestic water supplies. The scope of these services is directly related to the number of people who must be served. For example, there will undoubtedly be a requirement for additional police officers to serve the increased population served by the proposed project to maintain adequate police protection. The Town of Jackson Police Department and the County Sheriff's Office are currently meeting the recommended FBI guidelines for officer-to-population ratio (two officers/1,000 population). The projected combined 1995 population for the Town and County will require a total of approximately 40 full time officers (an increase of 15), along with the necessary support personnel, facilities and equipment. The revenue to meet these needs must come from taxes. There is also a good likelihood that resulting development patterns will create additional police enforcement problems by virtue of expanding the respective department's general service area.

Fire protection ratings in the County currently result in high insurance premiums. Additional development in the outlying areas of the County facilitated by the availability of central sewer will place an additional burden on the existing volunteer force. This burden may require that a substation is constructed in South Park to reduce response times. Central water systems to provide adequate hydrant protection to new subdivisions in the County may also be required. This is presently not a requirement, although the County has adopted State of Wyoming regulations which comprise the minimum standards for commercial and industrial development.

Teton County currently requires developers to provide such services as roads, road maintenance and snow removal. These costs associated with increased residential development in lower South Park, along with the costs for providing and maintaining centralized water systems, will undoubtedly be passed on to the buyer in the form of higher land and construction costs. Construction of the proposed wastewater facilities, and the accompanying increase in development, can be expected to result in the need for improved transportation facilities, particularly in the South Park area. Local vehicular traffic problems are currently experienced in the area, according to local planners. The problem is compounded by tourist traffic. A second access from west Jackson to the Town is currently in the discussion stages. Additional facilities will also be required to handle the projected population increase and trips generated during the 1978-1995 facilities planning period.

The Teton County and Proposed Comprehensive Plan and Implementation Program, prepared by the University of Wyoming Water Resources Research Institute in 1977, analyzed the cost of a $40,000 housing value on county government. The study showed that a development with a current average housing value of $40,000 would cause a burden on County government of approximately $2,000. The study also showed that to a large degree, the value of the housing in a particular development determines the associated costs to the County and the taxpayer. The comparison of revenues vs. expenditures for a $100,000 house in fact showed a net revenue of approximately $40,000, indicating that the right type of residential development can pay for itself, and not be a burden to County finances.

The existing solid waste disposal facilities are not adequate to meet the projected needs for Teton County. Regardless of whether of not the proposed treatment facilities are constructed, the County will need to develop an alternative solid waste management strategy to serve the projected future population. Alternative strategies are currently being considered by the County, as previously discussed in Section IV of this document.

3. Secondary Impacts on Local Water Quality

Indirect or secondary impacts of sewers on local surface and groundwater conditions are very difficult to project, and are primarily dependent on population growth and land development patterns. These impacts are associated with the potential for long term degradation of groundwater in the lower South Park area downgradient from the infiltration beds, and problems related to the increase in volumes of storm water runoff and discharge to the Snake River and Flat Creek. While it is likely that the proposed alternative will probably result in a reduction in the numbers of individual waste disposal systems in South Park thus reducing nutrient loadings and bacteria levels, the facilities plan engineer has identified relatively low nitrogen and phosphorus removal efficiencies for similar rapid infiltration systems presently in operation. These two parameters are particularly important from the standpoint of potential degradation of drinking water supplies (excessive nitrates), and eutrophication of surface water via surface and groundwater exchange (phosphorus). Although it is unlikely that any new domestic water supplies will be drilled downstream from the Lower Bench site, it is important that a groundwater observation network be installed to monitor these parameters. Careful system design, hydraulic loading and operation and maintenance requirements will be necessary to further reduce the potential for impairment of the groundwater system at the treatment plant site.

Increased development in the Town of Jackson, and outlying areas of South Park facilitated by the availability of central sewer will undoubtedly result in additional impervious ground surface (rooftops, roads, driveways, parking lots, etc.). These alterations in the natural drainage systems will augment urban runoff flows and increase runoff to Flat Creek. The Town of Jackson does not enforce specific stormwater management controls. The Teton County 208 Water Quality Management Plan has identified stormwater runoff as a priority wastewater problem in the Town of Jackson and vicinity, and recommended additional monitoring and regulatory programs which would assist in maintaining overall water quality in the area. A study conducted by the agency showed four major drains in the Town discharging significant loadings of organic matter, bacteria, nutrients, suspended solids and toxic chemicals to Flat Creek. During rainstorm episodes, the loadings exceeded the suspended solids and organic loading discharged by the Town's treatment plant. Without proper land use, construction and storm drainage controls (i.e., grading requirements, buffer zones, retention and treatment basins), and efficient street cleaning and maintenance programs, the benefits of increased wastewater treatment efficiency on local surface and groundwater quality may be negated by urban/suburban nonpoint pollution sources.

4. Indirect Effects on Air Quality

The long-term indirect effects on Jackson Hole air quality are dependent on increased population and resultant development patterns in the area. These effects are very difficult to project, due to the limited amount of air quality data available for the area. However, because the availability of sewers will remove existing development constraints associated with wastewater treatment (depending on the County tap-in arrangements), general impacts which can be expected to occur include increased carbon monoxide (CO) and other automobile-related pollutants, due to additional trips generated and miles traveled from South Park to the employment center of Jackson.

5. Fisheries and Wildlife Habitat Impacts

Based on discussions with WG&F personnel, no significant long-term impacts on the local fishery would be expected to occur as a result of implementation of the proposed project. Department officials generally indicated that the project could be expected to improve water quality in Flat Creek by removing the existing discharge. However, some concern was expressed by WG&F personnel that the proposed location, while not on the Elk Feedground, could result in some disturbance to the elk population because of related human activity at the plant for operation and maintenance. Continued disruption of existing feedground access points for elk would result in the eventual long-term loss of the elk feedground due to the continued urbanization of South Park. Department personnel further indicated that an official WG&F position statement will be issued by the Cheyenne office on the Facilities Plan Update and Final EIS.

While the peregrine falcon has been observed in the South Park area, information on frequency of occurrence or numbers is limited and impact assessments are difficult to make. However, the proposed project is not expected to affect any rare or endangered wildlife species.

6. Effects on Major Development Proposals and Other Federal, State and Local Programs

Construction of the proposed wastewater treatment facilities will affect a number of proposed and ongoing development proposals and governmental programs. Two of the most important developments include the pending Wild and Scenic Rivers designation of the Snake River through the study area, and the Jackson Hole Scenic Area proposal. The Wild and Scenic River Study of the Snake River by the U.S. Forest Service, which was discussed in detail in the Draft EIS, Jackson Wastewater Treatment System, (EPA, 1977), has recently been completed. Although the results of the study were not ready for official release at the time this document was drafted, according to Forest Service officials, the reach of the river through the study area will probably be designated a "recreation" classification. The management objectives for this classification, which include optimization of public use, and permitting new structures for habitation and recreation, would appear to be compatible with improved wastewater facilities and the probable growth facilitated by sewer availability.

The Jackson Hole Scenic Area Bills (S.2162 and H.R. 9135), which were introduced to the last session of Congress to establish funds (up to $200 million) to purchase scenic easements, have been modified substantially to study priority purchases within the 75,000 acre study area. The intent of the proposed legislation will undoubtedly be impacted by potential changes in the County's existing land use policy which would allow for higher density development in the areas south of Jackson. Development pressures on rural scenic lands in Teton County are currently significant, and will undoubtedly be increased with the potential availability of sewers in these areas. This pressure is demonstrated by the approximately 10,000 acres of prime farmland in the County which has been converted to more urbanized uses since 1969 (WRRI, 1977). Although it is not known at this time to what degree the new Teton County Commission and residents of the County will support the proposal, the concept of the scenic area is of national importance and interest.

Other major programs and development proposals likely to be affected by recommended Jackson wastewater facilities alternative include the Teton County Comprehensive Plan and Implementation Program (which was discussed earlier in this section), and the Jackson Hole Ski Area Master Plan, prepared by the Jackson Hole Ski Corporation and the U.S. Forest Service. The Master Plan, which was revised in March, 1978, identifies a significant increase in the existing recreation facilities necessary to accomodate a projected skier demand increase of from 175,000 skier days in 1975 to 681,496 skier days by 1992 (JHSC, USFS; 1978). Available overnight facilities at the resort presently are capable of accomodating 2,612 persons. At full development level, the planned housing would handle 8,452 persons. The Teton County Commission and the Teton County School District No. 1 have expressed concerns over the potential impacts of this level of development on local housing availability and services including schools, transporation, and police and fire protection. One of the major limiting factors to this level of development in the past has been adequate wastewater facilities to accomodate the growth necessary to serve such development.

7. Indirect Commitments of Natural Resources for the Proposed Action

The major indirect commitments of natural resources for the proposed action are related to the long-term changes in land use gradually brought about by development pressures and the availability of central sewers. These impacts have been discussed in previous sections of this document. While increasing urbanization, with its corresponding impacts on local water quality, fish and wildlife resources, and aesthetic and scenic values, is probably irreversible in the Jackson area, providing adequate wastewater collection and treatment systems will undoubtedly accelerate this process.

C. MAJOR IMPACTS OF THE ALTERNATIVES

This section will assess the major impacts of the three basic alternatives for the Facilities Plan Update which include:

- Alternative 1 - Aerated Lagoon/Rapid Infiltration System at the Upper Bench Site.
- Alternative 2 - Oxidation Ditch at the Upper Bench Site.
- Alternative 4 - Oxidation Ditch at the Lower Bench Site.

Particular attention is focused on evaluating those impacts which differ between the proposed action and the alternatives. This format is intended to provide the reader with a concise description of potential direct and indirect impacts for alternatives so that the reviewer may evaluate the alternatives by comparative merits. A comparison of several of the main impact categories for the proposed action and alternatives was provided in part A. For this reason, these categories (specifically economics, flood hazards, affected property owners, and political support) will not be included in this discussion.

1. Impacts of the Alternatives on Fish and Wildlife Resources

Alternative 1 (Aerated Lagoon/Rapid Infiltration, Upper Bench Site)

Discussions with the WG&F indicate that the major impacts of this alternative on local fish and wildlife resources are similar to those for the proposed action, and involve improved water quality in Flat Creek, and increased disturbance to the elk population in the State Feedground with the long-term potential for loss of the Feedground due to encroachment by more urbanized development in South Park. Department personnel also indicated that any facility at the Upper Bench site would potentially interfere with the existing elk jump located adjacent to the site. This facility is used by the Department during the winter months to herd elk by snowmobile into the feedground. Locating the treatment plant at the site would require relocation of the elk jump.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

The primary difference in the impacts of this alternative on fish and wildlife resources is associated with the proposed discharge to Flat Creek. However, treatment efficiencies identified in the Facilities Plan Update for the oxidation ditch process indicate that the level of treatment would in fact be higher than for the proposed alternative. Although the process is more compact, requiring only ten acres of land, the additional mechanical processes would undoubtedly result in some disturbance to feeding elk populations.

Alternative 4 - (Oxidation Ditch, Lower Bench Site)

This alternative would be expected to have minimal direct impacts on fish and wildlife resources in the project area. The facility would require less land, but involve a discharge to Flat Creek.

2. Water Quality Impacts of the Alternatives

Alternative 1 - (Aerated Lagoon/Rapid Infiltration, Upper Bench Site)

This alternative would be expected to have similar direct and indirect impacts on local water quality as the proposed action. Flat Creek water quality would be expected to improve as a result of implementation of this option. At present, the existing plant is overloaded. Improved facilities would result in a reduction in coliform, total suspended solids, residual solids, ammonia, nitrate and phosphate concentrations. Groundwater conditions at the Upper Bench site are more conducive to locating a rapid infiltration disposal system. Long-term water quality impacts associated with increased urbanization of South Park would be identical to those of the proposed project.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

Alternative 2 would require a discharge to Flat Creek. However, projected treatment efficiencies would result in improved water quality conditions in Flat Creek. Section V of this document analyzes efficiencies for the two treatment processes. With only 60 percent ammonia removal efficiencies (rates in the 90% range are attainable), the process would meet NPDES permits. Groundwater quality conditions at the site would not be impaired to the extent that would occur for the rapid infiltration alternatives. As previously discussed for the proposed project, although the effluent for a rapid infiltration system would be heavily diluted by the groundwater system, there is some concern over the level of nutrient removal this system will provide as related to increased eutrophication and potential groundwater contamination. Sludge handling and ultimate disposal would be required with this alternative. A disposal plan which considers water quality protection would need to be developed for this option.

Alternative 4 - (Oxidation Ditch at the Lower Bench Site)

This alternative would have similar impacts on local water quality as Alternative 2. Although a discharge to Flat Creek would be required existing literature indicates that treatment efficiencies attained by this process would meet or exceed NPDES permit requirements.

3. Air Quality and Odor

Alternative 1 - (Aerated Lagoon/Rapid Infiltration)

Odor problems for a properly operating aerated lagoon/rapid infiltration system would be minimal. Construction of the facility (particularly excavation of the lagoons) would be expected to result in short-term increases in particulate levels at the site. Long-term indirect effects of an improved wastewater facility on local air quality would be the same for all alternatives, and related to growth inducement and additional trips generated and miles traveled to adjacent employment centers in the Jackson study area.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

Odor is not a major problem for a properly operated and maintained oxidation ditch treatment plant. A study completed by EPA in 1978 for 20 treatment facilities utilizing this process identified no nuisance complaints or odor problems at the plants. However, improper handling of sludge during the drying process could result in potential odor problems at the facility. Dust emission would occur at the site during the construction stages of the project. This problem would be localized and short-term. Secondary growth related impacts on local air quality would be identical to those discussed for the proposed action.

Alternative 4 - (Oxidation Ditch, Lower Bench Site)

Although some odors would be expected to be associated with the treatment process, the remoteness of the location would minimize these impacts.

4. Aesthetics and Scenic Problems

Alternative 1 - (Aerated Lagoon/Rapid Infiltration, Upper Bench Site)

The Upper Bench site is located between 400 and 500 feet from U.S. Highway 189. The proposed treatment process for this alternative would require 40-50 acres of land, and would result in severe visual impacts from the highway. Visual buffering would probably not be feasible for this alternative, given the land area involved. Additional land area for future expansion is also extremely limited.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

Although this alternative would require only ten acres of land, the proposed siting layout shown in the Facilities Plan Update indicates the facilities would be located in close proximity to the highway. While compact site planning, visual screening (landscaping, berming, etc.) and plant design would reduce the visual effects of the facility, impacts at this site would be far more obtrusive than at the Lower Bench site.

Alternative 4 - (Oxidation Ditch, Lower Bench Site)

The visual impacts of constructing the oxidation ditch alternative at the Lower Bench site would provide the least adverse impact of the alternatives considered in the Facilities Plan Update. The general neighborhood is relatively undeveloped at this location. The relative "compactness" of the facility, as compared to the aerated lagoon/rapid infiltration system alternative, would reduce site design problems. Problems with visual screening and landscaping would also be reduced.

5. Energy Utilization

Alternative 1 - (Aerated Lagoon/Rapid Infiltration System, Upper Bench Site)

Energy requirements for an aerated lagoon/rapid infiltration system at either the Upper or Lower Bench sites identified by the facilities plan consultant are 100 connected horsepower. This requirement is low, as compared to the mechanical oxidation ditch treatment process. Additional energy comsumption for sludge handling and removal is not required for this option. It should be noted, however, that the identified energy requirements of 100 horsepower may be low, considering the cold climate in the Jackson area.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

Energy requirements for this option identified in the Facilities Plan Update include 150 connected horsepower, plus power requirements to heat the sludge handling area and haul the sludge.

Alternative 4 - (Oxidation Ditch, Lower Bench Site)

Energy requirements for this alternative would be identical to those discussed for Alternative 2.

6. Growth Inducement and Land Use Changes

Alternative 1 - (Aerated Lagoon/Rapid Infiltration, Upper Site)

The potential growth inducement and land use changes likely to occur as a result of this alternative are similar to those discussed for the proposed project. These impacts are more directly related to the treatment plant location and capacity, rather than the type of treatment process selected. All the proposed alternatives will have similar direct and indirect changes on existing land use and development patterns in the study area by removing a primary development constraint, adequate wastewater facilities. The rate of land use changes in the area will be determined by development pressures, the final provisions of the Tri-Party Agreement to be formalized by the Town of Jackson, Teton County and EPA, and the effectiveness of the Comprehensive Plan and Implementation Program in managing future growth in the planning area. It should be noted, however, that this location does not include adequate land area for future expansion. This situation in itself could limit growth beyond the 1978-1995 facilities planning period, in the event some of the major development proposals discussed in this document occur.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

As discussed for the previous alternative, future growth and land use impacts of providing improved wastewater facilities are primarily dependent on treatment capacity, plant location, and amount of vacant land served, along with the effectiveness of existing land use controls. Excess capacity at the plant will undoubtedly result in additional pressure for development in the outlying areas of the County. This is particularly the case without a defined service area, and out-of-city tap-in rate agreement.

Alternative 4 - (Oxidation Ditch, Lower Bench Site)

The impacts of implementation of this alternative on land use and development patterns are similar to those described for the proposed alternative.

7. Impacts on Public Services and Utilities

Alternative 1 - (Aerated Lagoon/Rapid Infiltration, Upper Bench Site)

As already discussed earlier in the Section, land use influences infrastructure (public services and utilities) needs, demands and investment. While land use controls (notably zoning) in most areas can hold land out of development for the short term, the availability of sewers in the Jackson area will probably have the effect of stimulating growth, particularly in the lower South Park area. This growth will require additional public services and utilities. Impacts on public services and utilities of locating an aerated lagoon/rapid infiltration system at the Upper Bench site will probably not be appreciably different than those described for the proposed alternative. Although the County presently requires that developers provide a portion of these necessary services, requirements to provide others such as police and fire protection are placed on the public sector. This situation.will undoubtedly result in higher taxes, or if the County decides to place additional requirements on developers, increased property and construction costs. A more detailed discussion of the potential impacts of constructing improved wastewater facilities in lower South Park is included in the description of impacts for the proposed project.

Alternative 2 - (Oxidation Ditch, Upper Bench Site)

The effects on local public services and utilities of constructing an oxidation ditch treatment facility at the Upper Bench site are similar to those described for the proposed alternative.

Alternative 4 - (Oxidation Ditch, Lower Bench Site)

The direct and indirect impacts this option are also similar to those discussed for the proposed project. These effects will be dictated by the demand for development in the lower South Park area, which will in turn be increased by the availability of sewers. For these reasons, project staging will probably play an important role in determining the level of impacts, as well as the final arrangements of the Tri-Party Agreement.

SECTION VI
LIST OF PREPARERS

The Final Environmental Impact Statement, Jackson Wastewater Treatment System Town of Jackson, Wyoming was prepared by the U.S. Environmental Protection Agency, Rocky Mountain Prairie Region, Region VIII, Denver, Colorado; with assistance from James M. Montgomery, Consulting Engineers, Inc., Boise, Idaho. Persons primarily responsible for preparing the final EIS include:

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Secretarial and graphics for the report were prepared by Ms. Colleen Collier and Mr. Jim Hurry of James M. Montgomery, Consulting Engineers, Inc., Boise, Idaho.

SECTION VII

REFERENCES

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APPENDIX A

AGREEMENT

THIS AGREEMENT made and entered into by and between The Town of Jackson, Wyoming, a municipal corporation (hereinafter "City"); Teton County (hereinafter "County"); and the U.S. Environmental Protection Agency, Region VIII, (hereinafter "EPA").

WHEREAS the City acting in the best interest of its inhabitants desires that its public health and water quality concerns be met by expanding its wastewater treatment system; desires that the proposed wastewater treatment facility be sited in South Park; and desires that the EPA fund that facility.

WHEREAS The County acting in the best interests of its inhabitants desires that any wastewater treatment facility to be sited in the unincorporated portions of Teton County not adversely impact on the welfare of its inhabitants; and will not agree to such a site without certain assurances.

WHEREAS the EPA desires that the proposed wastewater treatment facility be built as expeditiously as possible so as to resolve serious water quality problems.

NOW THEREFORE, the parties hereto in consideration of the mutual covenants made herein, make the following agreements:

TOWN OF JACKSON AGREES TO:

1. Design, build, operate and finance an appropriate sewage treatment plant at a proposed South Park location. The facility will include adequate land for future expansion including possibility of more advanced levels of treatment, and will be designed with a capacity of 2.65 M.G.D. to adequately handle and treat the sewage generated only by the Town of Jackson and its proposed expansion area or areas through the year 1995.

2. Design, construct and finance the interceptor sewer to the South Park treatment facility. The exact location of interceptor will be determined after counsulting with the County and land owners in the area.

3. Design, construct and finance (with County assistance) appropriate receiving and processing facilities for disposal of septic tank wastes.

4. Provide full local share of funding requirements for the sewage treatment project (except, special County assistance on septic tank waste disposal facility).

5. Submit to the County for review and approval all structures to be built at the South Park treatment site.

6. Begin as soon as possible to develop a new sewer system pricing policy that incorporates a "full cost" pricing concept for all customers for both capital and maintenance and operations costs, and for returning the county's capital contribution for septic tank waste disposal facilities.

7. Consider only requests for sewer service from out-of-city potential customers that have county development permits and County approval for sewer services.

8. Limit new taps to out-of-city customers so that they will only be granted to potential customers that have County approval and that are subject to a new City policy and detailed criteria that determines priorities for such connections.

The new City policy for distributing out-of-city taps will include at least the following classes of customers:

(1) existing systems with health and safety problems;
(2) existing systems with water pollution problems;
(3) City Expansion Area — as delineated in the Teton County Comprehensive Plan adopted December 6, 1977 or as amended;
(4) old and new developments adjacent to City limits;
(5) other existing developments; and,
(6) other new developments.

9. Limit the number of "out-of-city" equivalent taps, permitted on an annual basis so they shall not exceed the annual allowable number of "out-of-city" taps as set forth in the comprehensive plan or as amended.

For purposes of allocating these equivalent taps, "out-of-city" taps are defined as taps allocated to potential customers located outside the corporate limits of the Town of Jackson as of the date of this agreement. Such definition shall exclude any taps located in the Expansion Area (as delineated in the Teton County Comprehensive Plan adopted December 6, 1977 or as amended) or in any area which meets the following requirements: (1) the area has been annexed subsequent to this agreement or is subject to the provisions of a written annexation agreement; and, (2) the area is adjacent to the present city limits (i.e. situated so that the City is newly constituted is geographically compact).

Allowances may be made for reallocating any unused "out-of-city" taps in any one year as additional permitted "out-of-city" taps in future years. Existing residences outside the present City limits, on private sewerage systems as of the date of this agreement, may be connected to the City's system, (after receiving approval from first the County and then the City) without reducing permitted "out-of-city" tap limits for the year in which they connect.

10. Take all reasonable steps to assist the County in administering the County's Comprehensive Plan.

11. Require all new connections to City sewer system (whether or not within the City) to meet all the City's minimum design standards for connection and require all subdivisions within the Town expansion area or adjacent to the Town limits desiring sewer service to meet the Towns subdivision requirements.

12. Take all steps legally available to assure all elements of this agreement are enforced until at least 1995 (approximately 15 years from completion of new plant).

TETON COUNTY AGREES TO:

1. Approve any South Park site selected by the City which is consistent with engineering recommendations and analysis and otherwise in substantial or reasonable compliance with Chapter VI Sec. 8b thru q and Sec. 9 of the County Comprehensive Plan.

2. Approve the location of the interceptor line as finally designed by the City and issue all required County permits for its construction in accordance with State and County Laws. Recommend to City the location for interceptor that best meets needs of County.

3. Provide pro-rata share of facility capital cost for appropriate receiving and processing facilities for disposal of septic tank wastes.

4. Advise City of desired design criteria for all structures at the South Park Site.

5. Advise the City of all existing and future developments that the County wishes to be connected to the City's sewer system. Develop a policy and detailed criteria for making such decisions.

6. Take the lead in further addressing rate of growth issues in the County and develop an annual number of out-of-city taps per year as a part of the comprehensive plan taking into consideration fiscal and other forms of impact upon the County, scenic preservation activities, schools and other urban service systems. The development of the annual number of out-of-city taps shall be done prior to completion of the sewage treatment facilities.

7. Take all reasonable steps to carry out the new County Comprehensive Plan.

8. Require all County subdivision within the City expansion area or adjacent to the City limits that are to be served by the City of Jackson's sewer system to conform to development standards that meet or exceed the City's standards.

9. Take all steps legally available to assure all elements of this agreement are enforced until at least 1995 (approximately 15 years from the completion of new plant).

EPA, REGION VIII, AGREES TO:

1. Approve location of South Park treatment facility and provide standard design and construction funding assistance as per their existing rules and regulations and per their agreement with the State of Wyoming, Department of Environmental Quality (DEQ).

2. Approve location of South Park interceptor sewer and provide standard design and construction funding assistance as per their existing rules and regulations and per their agreement with the State of Wyoming, DEQ.

3. Approve addition of septic waste handling facilities and provide standard design and construction funding assistance as per their existing rules and regulations and per their agreement with the State of Wyoming, DEQ.

4. Approve all reasonable structural designs developed jointly by the City and County and provide standard design and construction funding assistance as per their existing rules and regulations and per their agreement with the State of Wyoming, DEQ.

5. Review the City's new sewer system pricing policy for consistency with EPA regulations and guidelines on user fee requirements and industrial cost recovery requirements.

6. Require an annual report (and access to documentation of said report) of the City stating the number and location of in-city and out-of-city taps granted in that year.

7. Recognize goals of the County Comprehensive Plan in making EPA decisions in the area.

8. Make funding assistance in accordance with EPA rules and regulations to build new plant and interceptor, said grant to be conditioned upon full and continued performance of this agreement for the design life of the facility which shall be until 1995. Further, will agree to seek other sanctions as might be necessary to assure full and continued performance with this agreement by all parties. Such sanctions may include, but not be limited to, the following:

- *Court directed mandatory compliance with provisions of agreement by all parties
- *Court directed repayment of federal sewer grant funds
- *Limitation on future EPA funds to area

WHEREFORE, the parties hereto have executed this Agreement through their duly authorized representatives, the date of signing as set forth below. This agreement shall not be binding until it has been executed by all parties.

TOWN OF JACKSON

April 13, 1978
date

April 13 1978
date

TETON COUNTY

4-13-78
date

date

U.S. ENVIRONMENTAL PROTECTION AGENCY

Jerry W. Raisch
4-13-78
date

APPENDIX B

DRAFT DISCHARGE PERMIT

Permit No.: WY-0021458

Effective Date: Date of Issuance*

Expiration Date: SEPTEMBER 30, 1983

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the CLEAN ~~Federal~~ Water ~~Pollution Control~~ Act, as amended (33 U.S.C. 1251 et. seq.) (hereinafter referred to as "the Act"),

THE TOWN OF JACKSON, WYOMING,

is authorized by the United States Environmental Protection Agency

to discharge from THE TOWN'S EXISTING WASTEWATER TREATMENT FACILITY (OUTFALL 001) AND THE TOWN'S PROPOSED NEW WASTEWATER TREATMENT FACILITY (OUTFALL 002)

to FLAT CREEK

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III, hereof

DRAFT

Authorized Permitting Official　　　　Date

Title

---

* Thirty (30) days after the date of receipt of this permit by the Applicant.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

1. IMMEDIATE Effluent Limitations — OUTFALL 001

Effective immediately, ~~the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below.~~

~~There shall be no change in operation that will significantly deteriorate the quality of the discharge below that presented in the permit application.~~

AND LASTING UNTIL THE COMPLETION AND ATTAINMENT OF COMPLETE OPERATIONAL STATUS OF THE NEW OR UPGRADED FACILITIES (SEE PART I B. OF THIS PERMIT) CONSTRUCTED WITH FEDERAL FUNDS AND DESIGNED TO MEET THE REQUIREMENTS OF PARTS I A.2. AND I A.3 OF THIS PERMIT, THE QUALITY OF EFFLUENT DISCHARGED BY THE EXISTING FACILITY SHALL, AS A MINIMUM, MEET THE LIMITATIONS AS SET FORTH BELOW:

a. The wastewater treatment facility shall be operated at its maximum capability and efficiency.

b. If, after on-site inspection by the Wyoming Department of Environmental Quality and/or the U.S. Environmental Protection Agency, it is determined that the facility is not being operated at its maximum capability and efficiency, such findings shall be considered to be a violation of this permit.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

2 FUTURE Effluent Limitations - OUTFALL 002

Effective SEPTEMBER 30, 1980 and lasting through SEPTEMBER 30, 1983, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below:
FOR THE PERIOD DURING EACH CALENDAR YEAR FROM MAY 1 THROUGH OCTOBER 14,

Average Effluent Concentration

Parameter	30 Consecutive Day Period	7 Consecutive Day Period	INSTANTANEOUS
BOD_5 - mg/l	30 a/	45 b/	
Total Suspended Solids - mg/l	30 a/	45 b/	
Fecal Coliform - number/100 ml	1500 c/e/	3000 c/e/	
TOTAL RESIDUAL CHLORINE - mg/l			0.05 d/
AMMONIA NITROGEN - mg/l (AS N)		10 b/	
AMMONIA NITROGEN - Kg/day (AS N)		132 f/	
AMMONIA NITROGEN - lb/day (AS N)		292 f/	
pH - units	Shall remain between 6.0 and 9.0		d/

a/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) consecutive samples taken on separate weeks in a 30-day period (minimum total of three (3) samples); not applicable to fecal coliforms - see footnote c/.

b/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) consecutive samples taken on separate days in a 7-day period (minimum total of three (3) samples); not applicable to fecal coliforms - see footnote c/.

c/ Averages for fecal coliforms shall be determined by the geometric mean of a minimum of three (3) consecutive grab samples taken during separate weeks in a 30-day period for the 30-day average, and during separate days in a 7-day period for the 7-day average. (minimum total of three (3) samples)

d/ Any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

e/ FECAL COLIFORM LIMITATIONS ARE EFFECTIVE ONLY FROM MAY 1 THROUGH SEPTEMBER 30 OF EACH CALENDAR YEAR.

f/ THIS LIMITATION SHALL BE DETERMINED BY THE ARITHMETIC MEAN OF THE DAILY QUANTITY OF THIS PARAMETER DISCHARGED ON A MINIMUM OF THREE (3) CONSECUTIVE MOVING DAYS IN A 7-DAY PERIOD. THE DAILY QUANTITY DISCHARGED SHALL BE DETERMINED FROM THE AVERAGE FLOW AND PARAMETER CONCENTRATION (DERIVED FROM COMPOSITE SAMPLING AS DEFINED IN PART C) FOR THAT DAY.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

3. Effluent Limitations — OUTFALL 002

Effective SEPTEMBER 30, 1980 and lasting through SEPTEMBER 30, 1983, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below:

FOR THE PERIOD DURING EACH CALENDAR YEAR FROM OCTOBER 15 THROUGH APRIL 30,

Average Effluent Concentration

Parameter	30 Consecutive Day Period	7 Consecutive Day Period	INSTANTANEOUS
BOD_5 - mg/l	30 a/	45 b/	
Total Suspended Solids - mg/l ~~a/~~	50 a/ e/	75 b/ e/	
~~Fecal Coliform - number/100 ml~~			
TOTAL RESIDUAL CHLORINE - mg/l			0.05 d/
AMMONIA NITROGEN - mg/l (AS N)		25 b/	
AMMONIA NITROGEN - Kg/day (AS N)		166 f/	
AMMONIA NITROGEN - lb/day (AS N)		365 f/	

pH - units Shall remain between 6.0 and 9.0 . d/

a/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) consecutive samples taken on separate weeks in a 30-day period (minimum total of three (3) samples); not applicable to fecal coliforms - see footnote c/.

b/ This limitation shall be determined by the arithmetic mean of a minimum of three (3) consecutive samples taken on separate days in a 7-day period (minimum total of three (3) samples); not applicable to fecal coliforms - see footnote c/.

c/ Averages for fecal coliforms shall be determined by the geometric mean of a minimum of three (3) consecutive grab samples taken during separate weeks in a 30-day period for the 30-day average, and during separate days in a 7-day period for the 7-day average. (minimum total of three (3) samples)

d/ Any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

INSERT P. 5

f/ THIS LIMITATION SHALL BE DETERMINED BY THE ARITHMETIC MEAN OF THE DAILY QUANTITY OF THIS PARAMETER DISCHARGED ON A MINIMUM OF THREE (3) CONSECUTIVE SAMPLING DAYS IN A 7-DAY PERIOD. THE DAILY QUANTITY DISCHARGED SHALL BE DETERMINED FROM THE AVERAGE FLOW AND PARAMETER CONCENTRATION (DERIVED FROM COMPOSITE SAMPLING AS DEFINED IN PART C) FOR THAT DAY.

FOOTNOTE CONTINUED FROM PAGE 4

e/ THESE LIMITATIONS ASSUME THAT WASTEWATER TREATMENT WILL BE ACCOMPLISHED SOLELY BY AERATED LAGOONS FOLLOWED BY ONE OR MORE NON-AERATED LAGOONS WITH DIRECT DISCHARGE TO THE RECEIVING STREAM AUTHORIZED ONLY DURING THE PERIOD SPECIFIED ABOVE. IF THIS SYSTEM AS PROPOSED IS NOT CONSTRUCTED, THIS PERMIT WILL BE MODIFIED TO REFLECT MORE RESTRICTIVE DISCHARGE LIMITATIONS. ADDITIONALLY, IF THIS SYSTEM IS CONSTRUCTED AS PROPOSED AND OPERATIONS DATA INDICATE THAT THESE LIMITATIONS CANNOT BE ACHIEVED DUE TO ALGAL GROWTH, THIS PERMIT WILL BE MODIFIED TO REFLECT LESS RESTRICTIVE DISCHARGE LIMITATIONS.

f/ INSERT HERE

4. ADDITIONAL OPERATIONAL REQUIREMENTS – NEW FACILITY

IF, AS PROPOSED, INFILTRATION/PERCOLATION BASINS ARE SELECTED AS THE METHOD OF ULTIMATE EFFLUENT DISPOSAL, ~~AND THESE BASINS ARE CONSTRUCTED USING FEDERAL FUNDS~~, THERE SHALL BE NO DISCHARGE OF WASTEWATER EFFLUENT TO THE RECEIVING STREAM DURING THE PERIOD FROM MAY 1 – OCTOBER 14 OF EACH CALENDAR YEAR. ANY SUCH DISCHARGE DURING THESE PERIODS WILL CONSTITUTE A VIOLATION OF THIS PERMIT UNLESS SUCH DISCHARGE IS AUTHORIZED IN ACCORDANCE WITH THE BYPASSING REQUIREMENTS CONTAINED IN PART II A.5 AND PART III OF THIS PERMIT. ADDITIONALLY, THERE SHALL BE NO DIRECT DISCHARGE TO THE RECEIVING STREAM DURING THE PERIOD FROM OCTOBER 15 – APRIL 30 OF EACH CALENDAR YEAR UNLESS ONE OR MORE OF THE FOLLOWING CONDITIONS EXISTS AND CAN BE DOCUMENTED:

1. CLIMATIC CONDITIONS HAVE REDUCED THE INFILTRATION AND/OR PERCOLATION RATES TO A DEGREE WHICH WILL PREVENT ALL OF THE EFFLUENT FROM BEING DISPOSED OF ON THE INFILTRATION/PERCOLATION BASINS.
2. VALVES OR PIPING TO OR IN THE INFILTRATION/PERCOLATION BASINS THAT BECOME INOPERABLE DUE

TO FREEZING OR FROZEN EFFLUENT CONDITIONS;

3. SEVERE WINTERTIME CLIMATIC CONDITIONS SUCH THAT THE PHYSICAL INTEGRITY OF THE INFILTRATION/PERCOLATION BASINS OR APPURTENANCES WOULD BE THREATENED BY THEIR CONTINUED USE UNDER THESE CONDITIONS. THIS CAN INCLUDE BUT IS NOT LIMITED TO THE POSSIBILITY OF RUPTURE OF VALVES OR PIPING AS A RESULT OF EFFLUENT FREEZING.

5. EXPANSION REQUIREMENTS

WHEN AVERAGE DAILY FLOW VOLUME INFLUENT TO THE WASTEWATER TREATMENT FACILITY REACHES 2.8 MGD DURING THE PERIOD FROM MAY 1 – OCTOBER 14 AND/OR 1.4 MGD DURING THE PERIOD FROM OCTOBER 15 – APRIL 30, THE PERMITTEE MUST BEGIN PRELIMINARY PLANNING FOR EXPANSIONS AND IF NECESSARY, UPGRADING OF THE FACILITY.

Self-Monitoring Requirements — DISCHARGES TO THE RECEIVING STREAM

The permittee shall monitor his discharge(s) as shown below:

Parameter	Frequency a/	Sample Type b/
Total Flow, mgd	CONTINUOUS	FLOW RECORDER
Total BOD_5, mg/l c/	WEEKLY	COMPOSITE
Total Suspended Solids, mg/l c/	WEEKLY	COMPOSITE
Fecal Coliforms, number/100 ml	WEEKLY	GRAB
pH, units e/ f/	DAILY	GRAB
TOTAL RESIDUAL CHLORINE, mg/l d/	DAILY	GRAB
TEMPERATURE, °C e/ f/	DAILY	GRAB
AMMONIA NITROGEN, mg/l (AS N)	WEEKLY	COMPOSITE
RECEIVING WATER FLOW, cfs g/	DAILY	GAUGE READING

a/ Quarterly samples shall be collected during the months of January, April, July, and October, if a continual discharge occurs. If the discharge occurs on an intermittent basis, the quarterly sample shall be collected during the period when that intermittent discharge occurs.

b/ See definitions, Part C.

c/ In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this parameter at the same frequency as required for this parameter in the discharge.

d/ MONITOR ONLY IF CHLORINE IS USED IN THE WASTEWATER TREATMENT PROCESS.

e/ SAMPLES FOR THESE PARAMETERS SHALL BE TAKEN AT THE SAME TIME AS THOSE FOR AMMONIA NITROGEN.

f/ FOR THE EXISTING FACILITY, A WEEKLY SAMPLING FREQUENCY IS ADEQUATE FOR THESE PARAMETERS.

g/ EFFECTIVE UPON INSTALLATION OF A STREAM GAUGING DEVICE AS PART OF THE CONSTRUCTION GRANT.

Self-Monitoring Requirements — DISCHARGES FROM THE TREATMENT LAGOONS TO THE INFILTRATION/PERCOLATION BASIN

The permittee shall monitor his discharge(s) as shown below:
REFER TO FOOTNOTES ON PAGE 6

Parameter	Frequency a/	Sample Type b/
Total Flow, mgd	CONTINUOUS	FLOW RECORDER
Total BOD$_5$, mg/l c/	WEEKLY	COMPOSITE
Total Suspended Solids, mg/l c/	WEEKLY	COMPOSITE
~~Fecal Coliforms, number/100 ml~~		
~~pH, units~~		
AMMONIA NITROGEN, mg/l (AS N)	WEEKLY	COMPOSITE
TOTAL NITROGEN, mg/l (AS N)	WEEKLY	COMPOSITE
RECEIVING WATER FLOW, cfs g/	DAILY	GAUGE READING

IN ADDITION, THE PERMITTEE SHALL MONITOR AND REPORT THE DATES AND TIMES OF DAY THAT EACH INFILTRATION/PERCOLATION BASIN IS FLOODED WITH LAGOON EFFLUENT, THE VOLUME OF EFFLUENT APPLIED TO EACH BASIN PER APPLICATION, AND THE APPROXIMATE AMOUNT OF TIME REQUIRED IN THE DEWATERING OF EACH BASIN.

~~a/ Quarterly samples shall be collected during the months of January, April, July, and October, if a continual discharge occurs. If the discharge occurs on an intermittent basis, the quarterly sample shall be collected during the period when that intermittent discharge occurs.~~

~~b/ See definitions, Part C.~~

~~c/ In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this parameter at the same frequency as required for this parameter in the discharge.~~

Self-Monitoring Requirements — INFILTRATION/PERCOLATION BASIN WELLS

The permittee shall monitor ~~his discharge(s) as shown below.~~ THE TEST WELLS CONSTRUCTED AS A GRANT REQUIREMENT DURING PERIODS OF APPLICATION TO THE INFILTRATION/PERCOLATION BASINS AS SHOWN BELOW:

Parameter	Frequency a/	Sample Type b/
	REFER TO FOOTNOTES ON PAGE 6	
~~Total Flow, mgd~~		
Total BOD$_5$, mg/l c/	WEEKLY	GRAB
Total Suspended Solids, mg/l c/	WEEKLY	GRAB
Fecal Coliforms, number/100 ml	WEEKLY	GRAB
~~pH, units~~		INSTANTANEOUS
DEPTH TO GROUNDWATER, ft.	WEEKLY	
AMMONIA NITROGEN, mg/l (AS N)	WEEKLY	GRAB
TOTAL NITROGEN, mg/l (AS N)	WEEKLY	GRAB

~~a/ Quarterly samples shall be collected during the months of January, April, July, and October, if a continual discharge occurs. If the discharge occurs on an intermittent basis, the quarterly sample shall be collected during the period when that intermittent discharge occurs.~~

b/ See definitions, Part C.

~~c/ In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this parameter at the same frequency as required for this parameter in the discharge.~~

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the FUTURE effluent limitations specified ~~for~~ IN ~~discharges~~ in accordance with the following schedule: PARTS I A.2., I A.3., AND I A.4.

1. SUBMIT APPROVABLE FACILITIES PLAN	NOVEMBER 1, 1978
2. APPROVE FACILITIES PLAN AND STEP II GRANT	JANUARY 8, 1979
3. SUBMIT APPROVABLE PLANS AND SPECIFICATIONS	MAY 15, 1979
4. APPROVE PLANS AND SPECIFICATIONS	JUNE 15, 1979
5. BEGIN CONSTRUCTION	JULY 1, 1979
6. SUBMIT CONSTRUCTION STATUS REPORT	MARCH 31, 1980
7. ATTAINMENT OF COMPLETE OPERATIONAL STATUS	SEPTEMBER 30, 1980

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Compliance and interim reporting dates shall be for periods not to exceed nine (9) months and to the extent practical shall fall on the last day of March, June, September, and December.

C. MONITORING AND REPORTING

1. *Representative Sampling*

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. *Reporting*

Monitoring results obtained during the previous 1 months shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on JANUARY 28, 1979 . Duplicate signed copies of these, and all other reports required herein, shall be submitted to the Regional Administrator and the State at the following addresses: If no discharge occurs during the reporting period, "no discharge" shall be reported.

3. *Definitions*

a. A "composite" sample, for monitoring requirements, is defined as a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow.

b. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

c. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement using existing monitoring facilities.

4. *Test Procedures*

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304(g) of the Act, under which such procedures may be required.

5. *Recording of Results*

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The dates the analyses were performed;

c. The person(s) who performed the analyses;

d. The analytical techniques or methods used; and

e. The results of all required analyses.

6. *Additional Monitoring by Permittee*

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

7. *Records Retention*

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the State water pollution control agency.

A. MANAGEMENT REQUIREMENTS

1. *Change in Discharge*

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the permit issuing authority of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. *Noncompliance Notification*

If, for any reason, the permittee does not comply with or will be unable to comply with any maximum effluent limitation specified in this permit, the permittee shall provide the Regional Administrator and the State with the following information, in writing, within five (5) days of becoming aware of such condition:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. *Facilities Operation*

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

4. *Adverse Impact*

The permittee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. *Bypassing* (see additional requirements under Part III)

Any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions of this permit is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit. The permittee shall promptly notify the Regional Administrator and the State in writing of each such diversion or bypass.

6. *Removed Substances*

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

7. *Power Failures*

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part I,

b. Take such precautions as are necessary to maintain and operate the facility under his control in a manner that will minimize upsets and insure stable operation until power is restored.

B. RESPONSIBILITIES

1. *Right of Entry*

The permittee shall allow the head of the State water pollution control agency, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any discharge of pollutants.

2. *Transfer of Ownership or Control*

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Regional Administrator and the State water pollution control agency.

3. *Availability of Reports*

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Regional Administrator. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

4. *Permit Modification*

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any terms or conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

5. *Toxic Pollutants*

Notwithstanding Part II, B-4 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

6. *Civil and Criminal Liability*

Except as provided in permit conditions on "Bypassing" (Part II, A-5) and "Power Failures" (Part II, A-7), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. *Oil and Hazardous Substance Liability*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

8. *State Laws*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

9. *Property Rights*

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. *Severability*

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART III

OTHER REQUIREMENTS

Additional Bypassing Requirements

If, for other reasons, a partial or complete bypass is considered necessary, a request for such bypass shall be submitted to the State of Wyoming and to the Environmental Protection Agency at least sixty (60) days prior to the proposed bypass. If the proposed bypass is judged acceptable by the State of Wyoming and by the Environmental Protection Agency, the bypass will be allowed subject to limitations imposed by the State of Wyoming and the Environmental Protection Agency.

If, after review and consideration, the proposed bypass is determined to be unacceptable by the State of Wyoming and the Environmental Protection Agency, or if limitations imposed on an approved bypass are violated, such bypass shall be considered a violation of this permit; and the fact that application was made, or that a partial bypass was approved, shall not be a defense to any action brought thereunder.

Percentage Removal Requirements

Effective immediately, the arithmetic mean of the Total BOD_5 and the Total Suspended Solids concentrations for effluent samples collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of the concentrations for influent samples collected at approximately the same times during the same period (85 percent removal). This is in addition to the concentration limitations on Total BOD_5 and Total Suspended Solids.

OTHER REQUIREMENTS (Continued)

Industrial Wastes

A. Each major contributing industry must be identified as to qualitative and quantitative characteristics of the discharge as well as production data. Such information shall be submitted within one hundred twenty (120) days of the issuance of this permit. A major contributing industry is defined as an industrial user discharging to a municipal treatment works that satisfies any of the following: (1) has a flow of 50,000 gallons or more per average work day; (2) has a flow greater than five percent of the flow carried by the municipal system receiving the waste; (3) has in its waste a toxic pollutant in toxic amounts as defined under Section 307(a) of the Clean Water Act of 1977 (Federal Register dated January 31, 1978); or (4) is found by the permit issuing authority to have a significant impact on the treatment works or the quality of effluent from the municipal treatment works.

B. The permittee must notify the permitting authority of any new introductions by new or existing sources or any substantial change in pollutants from any major industrial source. Such notice must contain the information described in "A" above and be forwarded no later than sixty (60) days following the introduction or change.

C. Pretreatment Standards (40 CFR 403.5) developed pursuant to Section 307 of the Act require that under no circumstances shall the permittee allow introduction of the following pollutants into the waste treatment system from any source of nondomestic discharge:

(1) Pollutants which create a fire or explosion hazard in the publicly owned treatment works.

(2) Pollutants which will cause corrosive structural damage to treatment works, but in no case, discharges with a pH lower than 5.0, unless the works is designed to accommodate such discharges.

(3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with the operation of the publicly owned treatment works.

(4) Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge of such volume or strength as to cause interference in the publicly owned treatment works.

(5) Heat in amounts which will inhibit biological activity in the publicly owned treatment works resulting in interference but in no case heat in such quantities that the temperature at the treatment works influent exceeds 40° C.(104° F.) unless the works is designed to accommodate such heat.

OTHER REQUIREMENTS (Continued)

Industrial Wastes

A. Each major contributing industry must be identified as to qualitative and quantitative characteristics of the discharge as well as production data. Such information shall be submitted at six (6) month intervals on June 30, and December 31, of each year. A major contributing industry is defined as an industrial user discharging to a municipal treatment works that satisfies any of the following: (1) has a flow of 50,000 gallons or more per average work day; (2) has a flow greater than five percent of the flow carried by the municipal system receiving the waste; (3) has in its waste a toxic pollutant in toxic amounts as defined under Section 307(a) of the Clean Water Act of 1977 (Federal Register dated January 31, 1978); or (4) is found by the permit issuing authority to have a significant impact on the treatment works or the quality of effluent from the municipal treatment works.

B. The permittee must notify the permitting authority of any new introductions by new or existing sources or any substantial change in pollutants from any major industrial source. Such notice must contain the information described in "A" above and be forwarded no later than sixty (60) days following the introduction or change.

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(3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with the operation of the publicly owned treatment works.

(4) Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge of such volume or strength as to cause interference in the publicly owned treatment works.

(5) Heat in amounts which will inhibit biological activity in the publicly owned treatment works resulting in interference but in no case heat in such quantities that the temperature at the treatment works influent exceeds 40° C.(104° F.) unless the works is designed to accommodate such heat.

OTHER REQUIREMENTS (Continued)

Industrial Wastes (Continued)

D. In addition to the general limitations expressed above, more specific pretreatment limitations have been and will be promulgated for specific industrial categories under Section 307 of the Act, including but not limited to, those listed below. Compliance with these regulations is required no later than three (3) years following the date of promulgation: (See 40 CFR, Subchapter D, Parts 400 through 500, for specific information).

Automatic and Other Laundries
Coal Mining
Electroplating
Inorganic Chemicals Manufacturing
Iron and Steel Manufacturing
Leather Tanning and Finishing
Machinery and Mechanical Products Manufacturing
Miscellaneous Chemicals Manufacturing
Nonferrous Metals Manufacturing
Ore Mining
Organic Chemicals Manufacturing
Paint and Ink Formulation and Printing
Paving and Roofing Materials
Petroleum Refining
Plastic and Synthetic Materials Manufacturing
Pulp and Paperboard Mills and Converted Paper Products
Rubber Processing
Soap and Detergent Manufacturing
Steam Electric Power Plants
Textile Mills
Timber Products Processing

E. At such time as a specific pretreatment limitation becomes applicable to an industrial contributor, the permit issuing authority may, as appropriate, do the following:

(1) Amend the NPDES discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable National pretreatment limitation;

(2) Require the permittee to specify, by ordinance, contract, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's facility for treatment;

OTHER REQUIREMENTS (Continued)

Industrial Wastes (Continued)

E. (Continued)

(3) Require the permittee to monitor its discharge for any pollutant which may likely be discharged from the permittee's facility, should the industrial contributor fail to properly pretreat its waste.

The permit issuing authority retains, at all times, the right to take legal action against the industrial contributor or the treatment works, in those cases where a permit violation has occurred because of the failure of an industrial contributor to discharge at an acceptable level. If the permittee has failed to properly delineate maximum acceptable industrial contributor levels, the permitting authority will look primarily to the permittee as the responsible party unless the contributor's discharge is obviously unacceptable under 40 CFR, Subchapter D - Water Programs.

OTHER REQUIREMENTS (Continued)

Violations Resulting from Overloading

Should there be a violation of any conditions of this permit, the United States Environmental Protection Agency has the authority under Section 402(h) of the Clean Water Act to proceed in a court of competent jurisdiction to restrict or prohibit further connections to the treatment system covered by this permit by any sources not utilizing the system prior to the finding that such a violation occurred. It is intended that this provision be implemented by the Agency (or the State) as appropriate.

Reapplication

If the permittee desires to continue to discharge, he shall reapply at least one hundred eighty (180) days before this permit expires using the application forms then in use. The permittee should also reapply if he desires to maintain a permit, even though there was not a discharge from the treatment facilities during the duration of this permit.

Compliance with Construction Grant

The permittee shall comply with those terms of any construction grant implementing the provisions of Section 201(b) through (g) of the Clean Water Act.

Staffing and Laboratory

Efficient facility operation contained in Part II, A.3., of this permit shall include but not be limited to adequate operator staffing and training as well as adequate laboratory and process controls.

APPENDIX C

COORDINATION AND CONSULTATION

This section contains letters of comments from individuals and groups to the Jackson Wastewater Treatment System Draft EIS. Those letters which commented directly on the Draft EIS have been reproduced in this document. Where a response is required of EPA to the letter, a response page follows that letter.

The following table is a listing of the comment letters received, the page in this chapter on which they can be found, and a general category listing of their contents. Comment categories are shown in a general attempt to indicate those aspects of the proposed action about which the commentors were most interested and concerned.

On June 28, 1977, at the Teton County Courthouse, Jackson, Wyoming, the EPA held a public hearing on the Jackson Draft EIS. The hearing was attended by approximately 45 people of which 19 presented testimony into the official record. Because of the length of the official hearing record and the costs involved, EPA has not reproduced the document for the final EIS. A summary is provided, however, listing the speakers, their support or opposition to the project, and the areas in which they were most concerned. The Public Hearing Record is available for public scrutiny at the Town of Jackson's city offices, and EPA's Region VIII Office, Denver, Colorado.

The following is a brief summary of comments received at the Jackson Wastewater Treatment System Draft EIS hearing:

1. Mr. Al Simpson (I) - Individual cost mid-South Park vs. South Park Road?

2. Mr. Ross Porter (R) - Type of lagoon? Will there be odors? Would rather pay for extra cost of a mechanical lagoon to reduce odor problems.

3. Mr. Hans Buehler (R) - Questioned lagoon operation in Jackson.

4. Mr. Gordon Bruchner (C) - (NHPQ Facility Plan Engineer) Indicated that NHPQ would intend to design a completely aerobic lagoon system to reduce odor.

5. Mr. Al Simpson (I) - Attorney representing Henry & Emily Oliver against Site No. A-4 Mid-South Park. Favors A-5 (South Fork), if large service area is to be considered.

6. Mr. Dick Ehrbright (A) - (Superintendent of Schools) Indicated that the South Park Road or the do-nothing alternative would have the greatest potential of impact upon the county school district.

7. Ms. Joyce Lucas (R) - Objected to the South Park Road site on the basis of odors.

8. Ms. Rose Kepford (R) - Objected to South Park Road site.

9. Mr. Orin Soest (R) - Concerned about exact location of South Park Road site.

10. Mr. Lou Wilson (R) - Favored a southern-most site.

11. Mr. Chuck Luton (R) - Favored a southern-most site.

12. Mr. Don Phillips (R) - Indicated he thought the elk on the Federal Refuge were polluting the valley's water.

13. Mr. Denny Becher (R) - Favored an effluent line entering the Snake River as far south as possible.

14. Mr. Lon Wilson (R) - Questioned location of Boyles Hill site.

15. Ms. Pam McCool (R) - Questioned whether population figures included the proposed Brown Hill development in South Park.

16. Mr. Ross Porter (R) - Questioned why a mechanical plant at South Park wasn't considered.

17. Mr. Jim Gilbert (R) - Favored a mechanical plant over a lagoon at any site.

18. Mr. Hans Buehler (R) - Questioned the cost effectiveness of doing an I and I study at Jackson and the flow figure related to I and I.

19. Mr. Reid Jackson (A) - (Teton National Forest) Questioned why tertiary treatment wasn't considered as a method of improving water quality to protect the wildlife and scenic values of the area.

(A) - Agency
(C) - Consultant
(I) - Intervener
(R) - Resident

Table 10 presents a summary of the written comments that we received by the EPA during the 45-day review period. Following the table are the letters and responses prepared by the EPA.

The Environmental Protection Agency, Region VIII, wishes to express its appreciation to all commenting agencies, groups and individuals for the time and effort spent in reviewing the Draft EIS. All comments were presented to the Regional Administrator and were considered by him in the EPA's decisions-making process.

TABLE 10
COMMENT RECEIVED ON DRAFT EIS

	From	General Tone	Wild and Scenic Rive	Wildlife	Recreation	Costs	Energy	Fisheries	Water Supply Water Quality	Mitigation	Pop. Projection, Growth	Reserve Capacity	Historic Preservatio	Land Use, Planning	Secondary Growth	Construction Impact	Alternatives	Floodplain Developmer	Federal Policy	Sludge Disposal	Air Quality	Health & Sanitation
1	U. S. Dept. Agriculture Forest Ser Bridger-Teton Natl Forest	Informative	x						x										x			
2	Same as above	Informative	x																x			
3	Dept. of the Army, Walla Walla Dist., Corps of Engineers	Supportive																x				
4	Federal Energy Administration	Informative					x									x						
5	U.S. Energy Research and Development Administration	No Comments																				
6	Dept. of Health, Education and Welfare Region VIII	Generally Supportive																				
7	Dept. of HEW, Public Health Service	Informative																				x
8	Dept. of Housing and Urban Development	Critical									x			x	x							
9	U.S. Dept. of Interior Geological Survey	Informative															x					
10	U.S. Dept. of Interior, Off. of Sec'y - Missouri Basin Region	Critical	x	x					x				x			x						
11	State of Wyoming Executive Department	Supportive																				
12	State of Wyoming-Dept. of Envir. Quality, Air Quality Division	Generally Supportive																		x		
13	State of Wyoming-Dept. of Envir. Quality, Water Quality Division	Informative							x													
14	State of Wyoming-Dept. of Econ. Planning and Development	Critical									x											

TABLE 10
COMMENT RECEIVED ON DRAFT EIS

	From	General Tone	Wild and Scenic Rive	Wildlife	Recreation	Costs	Energy	Fisheries	Water Supply	Water Quality	Mitigation	Pop. Projection, Growth	Reserve Capacity	Historic Preservatio	Land Use, Planning	Secondary-Growth	Construction Impact	Alternatives	Floodplain Developme	Federal Policy	Sludge Disposal	Air Quality	Health & Sanitation
15	State of Wyoming-Commission of Public Lands & Farm Loans	Informative													x								
16	State of Wyoming-Recreation Commission	Informative												x									
17	Teton County 208 Agency	Supportive																					
18	Teton County School District	Questioning										x				x							
19	National Wildlife Federation	Supportive		x																			
20	The Wilderness Society	Supportive	x	x																			
21	Mr. Robert Ablondi	Informative				x						x			x	x							
22	Mr. Hans Buehler	Critical			x	x						x	x				x					x	x
23	Mr. James Gilbert	Critical				x											x					x	
24	Mr. Byron Jenkins	Informative								x		x	x										

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Bridger-Teton National Forest, Box 1888, Jackson, Wyoming 83001

June 10, 1977

John A. Green
Regional Administrator
Region VIII Office
U.S. Environmental Protection Agency
1860 Lincoln Street
Denver, CO 80203

Dear Sir:

I appreciate the opportunity to review the Draft Environmental Impact Statement for the Jackson Wastewater Treatement System. As you have noted in the statement, the Forest Service is directly involved because of responsibilities as Lead Agency in the Wild and Scenic River Study. Also, we have much interest in the town of Jackson and County of Teton due to our overall management responsibilities and involvement in county and city planning. Following are our comments on your Draft EIS:

1. Summary Sheet, Paragraph B: You probably ought to mention that the proposal is also located within the Wild and Scenic River Study Corridor.

2. Page I-4 and II-14 and 16: There appears to be a misunderstanding between us on what PL 90-542 says regarding responsibility for projects occurring during the study. As Lead Agency we do not have the responsibility for making determinations on the effects of projects developed by other agencies on potential Wild and Scenic or Recreational River classifications. We do not have the responsbility of developing mitigating measures that are necessary to make a project we are not proposing or developing compatible with a classification potential. Also, we do not have authority to decide whether or not a project may be allowed to proceed. This authority rests with the appropriate Secretary and is not delegated to the Lead Agency. 2–

   As Lead Agency we have responsibility for seeing that the Wild and Scenic River Study is completed in a proper manner and within time frames. We feel we have responsibility to monitor interim projects and assure that the involved agencies comply with procedures outlined in Sections 7(b) and (c). We also feel responsible to advise and aid the involved agency where possible in meeting requirements of the Act.

6200-11 (1/69)

3. Section III: An additional problem you probably ought to expand upon in this section is the problem of constructing a lagoon within the Wild and Scenic River Study Corridor in a manner that will not affect classification potential. As you know, the proposed site is in one of the few public access and camping areas in this river section. The Interagency Study Committee has identified classification potential as Recreational for this river section. It would seem that designing and constructing a facility of this size would be difficult without adversely affecting the desired recreational character. 3

4. Sections V and VI: You make no determination in your impact sections on how the proposal or alternatives affect possible Wild and Scenic River Classification. As stated in our point number 2, we feel this is an important aspect of the project EIS and your responsibility. Section 7(b) of the Wild and Scenic River Act documents this requirement. It would also seem that without identifying such effects the statement is inadequate considering NEPA's requirements. 4

Of particular concern is how the outflow of secondary effluent would affect the water quality standards described in the "Guidelines For Evaluating Wild, Scenic And Recreational River Areas Proposed For Inclusion In The National Wild And Scenic Rivers System Under Section 2, Public Law 90-542." It may actually improve classification potential if water quality is improved.

Another important potential effect is the outflow structure's effect on recreational, scenic, wildlife or other attributes. As we mentioned in our previous letter to you, the stream instability of the Snake makes outflow structures a problem. The Statement should specify what consequences may occur and mitigating measures that can be taken to reduce effects and possibly make the structure acceptable.

Your agency is the acknowledged expert in identifying consequences of such projects. You also have expertise in developing design features that can reduce adverse consequences of this type of activity. In other words, your agency is the logical source of such information.

5. Page II-34: The reference to silvicultural activities is in need of revision corresponding to the information supplied in the Technical Report to the 208 Agency, Water Quality Investigation on the Bridger-Teton National Forest. Specifically, the third sentence of the second paragraph should read, "may be" rather than, "are all." In the fourth sentence, fertilizers should be ommitted from consideration since fertilization of National Forest land in Teton County is not taking place nor is it likely to be an accepted practice in the future. 5

Also as indicated in the 208 Technical Report, the effect of removing forest vegetation in streamside areas is not a factor in Teton County since most of the riparian vegetation is willow or other shrub species and a buffer strip is maintained along stream channels where tree cover exists.

6 It may be advisable to qualify comments on pesticides as applied to timber harvesting. The only pesticide application for silvicultural purposes in Teton County in the past 25 years was the use of diesel and ethylene dibromide by field crews on individual trees to control the bark battle which had heavily infested lodgepole pine in Grand Teton National Park and the Bridger-Teton National Forest. It is our recommendation that this section of the report be kept specific to Teton County rather than generalized to reports on silvicultural efforts from studies conducted in other parts of the limited states, since forest practices from other areas may not be applicable to the forest conditions in Teton County.

Again, we appreciate the opportunity to comment on this important project. We also appreciate the complexity of planning and analyzing it. I suggest that the next time your planners are in the area, they stop in to discuss the project and Wild and Scenic River Study with us. Let us know if we can aid in any other way.

Sincerely,

Gary E. Marple

for REID JACKSON
Forest Supervisor

Response to Comments by the Bridger-Teton National Forest

1. In fact, only the effluent outfall lines to the Snake River are located within the normally considered 1/4 mile study corridor. All of the proposed treatment facilities are located in areas outside the river corridor and for the most part, adjacent to existing development. Reference is made in paragraph D of the Summary to the compounded problems of constructing an outfall line to Snake River due to its potential inclusion in the Wild and Scenic River system.

2. In describing the responsibility of the Forest Service as "lead agency" for the Upper Snake Wild and Scenic River Study, it was not the intention to imply that final authority for any determination on use compatibility rested with the Forest Service alone. While Secretary of Agriculture will make any determination on the classification of the Snake River, the Forest Service, as his agent, will prepare the necessary studies and recommendations. As such, the EPA would want to work with the Forest Service to develop the type of information that it will need in its study, and cooperate in insuring that mitigation measures that will enhance the environmental qualities of the river are included in any final design. The EPA acknowledges the fact that it has responsibility for water quality and the impacts of facilities constructed under its programs, but feels that the "lead agency" for the Snake River Study must be involved in the processes and provide salient input.

   We feel that the draft statement discusses, in detail, the water quality and engineering impacts the various alternatives would have on the potential classification of the river. In general, only the outfall structure itself would visually intrude on the river corridor. This, as stated in the document, would require significant engineering and architectural modification to insure its compatibility. However, it should be noted that the proposed alternative involves disposal by infiltration basins. The outfall line to the Snake River is no longer under consideration.

3. EPA has decided not to fund a lagoon. This was the only site that may have conflicted with the Wild and Scenic River Corridor in a manner that could have effected its classification potential.

4. On the contrary, we feel that the information necessary to make this determination is presented in adequate detail. Due to the variety of requirements and specific areas that must be met and addressed, our format analyzed impacts on the basis of specific categories (i.e., water quality, wildlife, aesthetics, etc.). This, we felt, would include the Snake River's special value along with those of the rest of the Jackson area. Our analysis, and that of the National Eutrophication Survey, indicated that secondary treated effluent from a proposed Jackson wastewater treatment facility would not violate existing water quality criteria at normally expected low flows. We further pointed out that the outfall structure would require extensive modification depending upon the classification that was to be adopted. However, this is no longer a major concern as no outfall line to the Snake River is being proposed. It should be noted that due to the physiographic and geologic limitations of the Jackson area, the Snake is the only available receiving water that can accommodate the expected discharge of a secondary plant for the Jackson area without degrading the water quality of the area. The flow in Flat Creek is not great enough to be depended upon for accommodating the future effluent discharge from the population project for the Jackson/South Park region.

5. Changed as noted.

6. The popularity of use of pesticides to control forest insects has undergone a resurgence of interest. While its use may be limited in the Teton County area, it cannot be ruled out as a potential source of nonpoint source pollution.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Bridger-Teton National Forest, Box 1888, Jackson, Wyoming 83001

2370
July 15, 1977

John A. Green
Regional Administration
U.S. Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, CO 80203

Dear John:

The planning and evaluation process for the Jackson Wastewater Treatment Facility has our concerned interest because of possible ramifications to the Wild and Scenic Rivers Study and classification potential. Specifically, it appears to us that EPA planners feel the Forest Service, as lead agency for the Wild and Scenic River Study, is responsible to set standards, design mitigating measures and make decisions on whether or not certain aspects of the project can actually occur. This philosophy is evident in the project's Draft-EIS and the attached statement published in a local paper following your recent public hearing.

We view our role as a cooperator in your evaluation process. At this point in the Wild and Scenic River Study we can supply you with the classification potential for the involved river section. Also, we can help you define the impacts that the project may have on this potential. We do not feel qualified, nor responsible to design mitigating measures or to make a determination on whether or not a certain phase of the operation can occur. We look to EPA, as the national leader in water quality matters, to provide technical expertise and to assure that the eventual project will safeguard the environment of the Snake River.

Section 7 of the Wild and Scenic Rivers Act establishes the decision making role with the appropriate Secretary and gives the proposing agency the burden of identifying the impacts a project may have on classification potential. It is also the proposing agency's responsibility to inform the appropriate Secreatry of their project and its impacts in light of the wild and scenic river potential.

Both the Wild and Scenic River Study and Jackson Wastewater Treatment Facility Analysis are interagency in nature. To imply that one agency is the sole entity in determining project appropriateness can lead to public misunderstanding and poor interagency relations.

As you know, resource values in Jackson Hole are high and every issue sparks a hot controversy. It is therefore of utmost importance that we work together on this issue in order to provide Jackson with an adequate treatment facility and meet requirements of the Wild and Scenic Rivers Act.

Sincerely,

Reid Jackson

REID JACKSON
Forest Supervisor

Response to the Comments by the Bridger-Teton National Forest

1. EPA appreciates the opportunity to assist the Forest Service on the Snake River Wild and Scenic River Study. The design and construction of the proposed lagoon/rapid infiltration system meets several objectives of both EPA and the Forest Service. This system eliminates the need for any outfall line to the Snake River and the additional level of treatment described by the design engineer as being provided by the infiltration basins further perfects water quality beyond that necessary to meet mandatory standards.

FEDERAL ENERGY ADMINISTRATION
REGION VIII
1075 South Yukon
P.O. Box 26247, Belmar Branch
Lakewood, Colorado 80226

June 28, 1977

Mr. John A. Green
Regional Administrator
Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80203

Dear Jack:

We have reviewed the draft EIS on the Jackson Wastewater Treatment System, Jackson, Wyoming. The plan is well done and presents the environmental characteristics quite adequately.

1 We are interested in the energy requirements of the proposed systems and inquire whether energy conservation techniques will be incorporated in the selected system; i.e., use of high efficiency electric motors and pumps, capturing and using in-plant methane if available, using gravity flow over pumping as much as possible, and so forth.

2 The EIS mentions the existence of high seismicity in the area caused by activity of the Intermountain Seismic Belt. It is questioned whether the new proposed systems will incorporate engineering designs to minimize damage by seismic activity. Also, will the plant facilities be located to minimize effects caused by slope failure similar to the massive failures that occurred during the 1959 Yellowstone disaster?

Thank you for the opportunity to comment on this draft EIS.

Sincerely,

Dudley

Dudley E. Faver
Regional Administrator

Response to Comments by the Federal Energy Administration

1. An aerobic treatment system does not generate methane or other significant energy sources. With electrical energy being as expensive as it currently is and will continue to be, the use of energy-efficient electrical components is a necessity. A competent engineer will size the equipment in order to maximize its efficiency factor.

2. The writer's questioning of whether the proposed design will incorporate seismic and slope protection appears inappropriate. The design and proper mitigation for geologic hazards should be an integral part of any engineering effort. The proposed site is not located on or near an active fault, near any unstable slopes, and is not in the 100-year floodplain.

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
BLDG. 602, CITY-COUNTY AIRPORT
WALLA WALLA, WASHINGTON 99362

NC = No Comment
response

NPWEN-PL

3 June 1977

Mr. John A. Green
Regional Administrator
U. S. Environmental Protection Agency
Region VIII Office
1860 Lincoln Street
Denver, Colorado 80203

Dear Mr. Green:

This letter is in response to your letter of 20 May 1977. We appreciate the opportunity to review and comment upon the Draft Environmental Impact Statement for the Jackson Wastewater Treatment System serving the town of Jackson, Wyoming.

After reviewing the Statement, we find that the proposed facilities would not significantly affect any known project under the jurisdiction of the Corps of Engineers; nor do we uncover any impacts associated with the proposed project in the categories of navigation, flood control, or hydropower development.

Sincerely yours,

W. E. SIVLEY
Chief, Engineering Division

CF:
General Counsel
Council on Environmental Quality
722 Jackson Place N.W.
Washington, D. C. 20006

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

REGION VIII

June 15, 1977

IN REPLY REFER TO:
8DE

Mr. John A. Green
Regional Administrator
Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80203

Dear Mr. Green:

We are writing in regard to your draft environmental impact statement (EIS) on the Jackson Wastewater Treatment System for the town of Jackson, Wyoming.

Our review indicates that while your statement deals extensively with the growth potential of the various alternatives, it does not assess the impacts of growth. Your statement does not deal with the growth-related impacts on education, recreation, social services, health services, public safety services or a number of related elements. The major consideration should be the ability of these elements to adequately serve the anticipated growth.

Because of the substantial growth which this project will enhance, we feel it is essential that you deal with the impacts of that growth of the major elements of the physical and social environment.

Sincerely,

Robert J. Matuschek

Robert J. Matuschek
Assistant Regional Administrator
Community Planning and Development

Insuring Offices
Casper, Wyoming - Denver, Colorado - Fargo, North Dakota - Helena, Montana - Salt Lake City, Utah - Sioux Falls, South Dakota

Response to the Comments by the Department of Housing and Urban Development

1. The analysis of the growth impacts generated by a wastewater treatment facility is a multi-faceted problem. It entails both the primary and secondary consideration of economic, social, cultural and land utilization changes and induced problems. These questions are dealt with extensively in the draft EIS on pages V-15 through V-33. The final EIS provides additional analyses of the growth-related impacts of the proposed wastewater facilities. HUD is referred to in the document for further information.

   The impact the various alternatives would have on social and municipal services are discussed in some detail. The reader is referred to pages V-26 and V-27 which provide a general framework of the discussion of these impacts. In this section, the implications and interrelations between the expansion of available sewer service, community growth and the necessary expansion of other municipal services (i.e., fire and police protection, recreation, education) is explained and generally quantified. Given the many unknowns surrounding future growth in the area, it's unrealistic to become too specific and attempt to apply numbers to each of the services mentioned in HUD's letter.

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

JUL ; 4 1977

Mr. John A. Green
Regional Administrator
U. S. Environmental Protection Agency
Region VII
1860 Lincoln Street
Denver, CO 80203

Dear Mr. Green:

This is in response to your transmittal dated May 20, 1977, in which you invited the Energy Research and Development Administration (ERDA) to review and comment on the U. S. Environmental Protection Agency's draft environmental impact statement related to the Jackson Wastewater Treatment System, Jackson, Wyoming.

We have reviewed the statement and have determined that the proposed action will not conflict with current or known future ERDA programs. We have no comments to offer on the statement itself.

Thank you for the opportunity to review and comment on the draft statement.

Sincerely,

W. H. Pennington, Director
Office of NEPA Coordination

Council on Environmental
Quality (5)

DEPARTMENT OF HEALTH. EDUCATION. AND WELFARE
REGION VIII
FEDERAL OFFICE BUILDING
19TH AND STOUT STREETS
DENVER. COLORADO 80294

NC.

June 28, 1977

OFFICE OF THE REGIONAL DIRECTOR

Mr. John A. Green
Regional Administrator
U.S. Environmental Protection Agency
1860 Lincoln Street
Denver, CO 80203

Dear John:

Thank you for the opportunity to review the draft environmental impact statement on the Jackson Wastewater Treatment System for the Town of Jackson, Wyoming.

It appears that the impacts expected to result from this proposed project and reasonable alternatives thereto have been adequately addressed.

Sincerely yours,

for Edwin R. LaPedis
Acting Regional Director

cc:
Office of Environmental Affairs
HEW, Washington, D.C.

Council of Environmental Quality
Washington, D.C. (2 copies)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333
TELEPHONE · (404) 633-3311

November 10, 1976

Mr. John A. Green
Regional Administrator
United States Environmental Protection Agency
Region VIII
1860 Lincoln St.
Denver, Colorado 80203

Dear Mr. Green:

We have received the notice of your intent to prepare an EIS on the Wastewater Treatment Facility Plan, Jackson, Wyoming. Water Resources Activity's interest is in the area of mosquito vector problems; our input to the draft EIS would be related to mosquito production which might be caused by the project. We were contacted last June by Ms. Jan Miller of the 208 Planning Agency for information on mosquito control problems, and we furnished several informational articles.

Vector prevention should be included in the plan. Such structures as sewage stabilization ponds have created serious mosquito problems throughout the western United States and are well documented in the scientific literature. Therefore, vector considerations should be included in regard to structural developments.

Please place this office on your mailing list to receive future notices on the Jackson facilities. If we can provide any further technical information, please contact us.

Sincerely yours,

James M. Stewart
Senior Sanitarian
Water Resources Activity
Vector Biology Control Division
Bureau of Tropical Diseases

CC:
Dr. R. O. Hayes
Dr. S. Breeland

Response to the Comments by Department of Health Education and Welfare.

1. By providing sufficiently steep slopes, lining with an impervious day barrier will generally reduce the potential for emergent vegetation, and the mosquito problem associated with wastewater stabilization ponds. These or similar measures will be included in any final design.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
REGIONAL OFFICE
EXECUTIVE TOWER - 1405 CURTIS STREET
DENVER, COLORADO 80202

REGION VIII

June 15, 1977

IN REPLY REFER TO:
8DE

Mr. John A. Green
Regional Administrator
Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80203

Dear Mr. Green:

We are writing in regard to your draft environmental impact statement (EIS) on the Jackson Wastewater Treatment System for the town of Jackson, Wyoming.

Our review indicates that while your statement deals extensively with the growth potential of the various alternatives, it does not assess the impacts of growth. Your statement does not deal with the growth-related impacts on education, recreation, social services, health services, public safety services or a number of related elements. The major consideration should be the ability of these elements to adequately serve the anticipated growth.

Because of the substantial growth which this project will enhance, we feel it is essential that you deal with the impacts of that growth of the major elements of the physical and social environment.

Sincerely,

Robert J. Matuschek

Robert J. Matuschek
Assistant Regional Administrator
Community Planning and Development

Response to the Comments by the Department of Housing and Urban Development

1. The analysis of the growth impacts generated by a wastewater treatment facility is a multi-faceted problem. It entails both the primary and secondary consideration of economic, social, cultural and land utilization changes and induced problems. These questions are dealt with extensively in the draft EIS on pages V-15 through V-33.

   The impact the various alternatives would have on social and municipal services are discussed in some detail. The reader is referred to pages V-26 and V-27 which provide a general framework of the discussion of these impacts. In this section, the implications and interrelations between the expansion of available sewer service, community growth and the necessary expansion of other municipal services (i.e., fire and police protection, recreation, education) is explained and generally quantified. Given the many unknowns surrounding future growth in the area, it is unrealistic to become too specific and attempt to apply numbers to each of the services mentioned in HUD's letter.

   The final EIS provides additional analyses of the growth-related impacts of the proposed wastewater facilities. HUD is referred to the document for further information

United States Department of the Interior
OFFICE OF THE SECRETARY
MISSOURI BASIN REGION
DENVER, COLORADO 80225

ER 77/511

July 11, 1977

Mr. John A. Green
Regional Administrator
U.S. Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80203

Dear Mr. Green:

We have reviewed the draft environmental statement for the Jackson Wastewater Treatment System and offer the following comments for your consideration in preparing the Final Statement.

General Comments

1 The U.S. Fish and Wildlife Service has expressed opposition to the proposal to build a wastewater treatment plant on the South Park Elk Feedground. The land in question was acquired through the Federal Aid in Wildlife Restoration Act (P.L. 75-415) to help preserve the Jackson Hole elk herd. Use of portions of these lands for sewage treatment would result in the loss of control by the State Fish & Game Department and constitute a diversion of land requiring mitigating measures. Also, building in this area would encourage residential development to accelerate near a critical area, further impacting wildlife and could be a detriment to the downstream water quality during periods of flooding.

2 The draft environmental statement recognizes the ongoing study of the Snake River to determine its eligibility for inclusion in the National Wild and Scenic Rivers System. However, the document does not adequately assess the impacts of the various alternatives on the river's potential for inclusion in the national system. We recommend that the project sponsor consult with the Snake River Study Team leader (Forest Supervisor, Bridger-Teton National Forest) before publication of the final environmental statement to evaluate each alternative and its impacts to the study. This analysis should be included in the final document. The discharge of effluent directly into the Snake River could jeopardize the river's eligibility by damaging aesthetic values and diminishing water quality. In addition, such discharge would, as the document notes, necessitate concealment of the outfall system--a significant engineering problem in view of the river's unstable channel. It should be noted that such water lines are discouraged under "Guidelines

for Evaluating Wild, Scenic, and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542." The Forest Service can also provide information regarding the progress of the study and any preliminary findings.

3 The South Park area reportedly receives heavy recreational use. The final document should describe this present use and quantify the loss of recreational opportunity resulting from implementation of each alternative.

4 The statement should include a discussion of requirements for monitoring in the vicinity of any sewage impoundment facilities to permit quick detection of the movement of pollutants and remedial measures in the event of leakage. On the basis of the geohydrology of the project area, your conclusion that the proposed stabilization lagoon system in the South Park Elk Feedground could result in serious ground-water impacts appears correct.

5 The statement should indicate that all lagoons or impoundments used in the wastewater treatment systems will be constructed entirely above the water table. The latter premise would probably require that any impoundment used be raised and mounded above the land surface because of extremely shallow water-table conditions and would be sealed and/or lined to assure containment and prevention of ground-water contamination.

6 The impact of the proposed action upon Grand Teton National Park should be addressed. If there will be no effect,the final environmental statement should reference this fact.

7 We concur with the State Archeologist that an intensive archeological survey of the project area prior to construction is needed. It should include extensive testing for subsurface archeological remains as outlined in the proposed guidelines for "Recovery of Scientific, Prehistoric, Historic, and Archeological Data: Methods, Standards and Reporting Requirements" (36 CFR, Part 66). The results of the professional survey should guide the decision as to whether a professional archeologist should be present during project development to ensure compliance with Executive Order 11593; this requires an undertaking agency to evaluate the significance of any uncovered cultural resources and nominate to the National Register of Historic Places any sites that meet the criteria. The final environmental statement should include a copy of the State Historic Preservation Officer's letter of comment concerning the project. Such correspondence would facilitate the review process.

Specific Comments

8 Existing Environment Section--Recommend that a section be added under "Existing Environment" to describe the existing fish and wildlife resources that occur in the Jackson Hole area and downstream on the Snake River.

9 Page II - 32--The statement should indicate whether exfiltration--as well as infiltration--is currently a problem and perhaps a source of some of the current pollution of ground water; this would have significance in the assessment of the no-action alternative.

10 Page II - 58--The statement should indicate whether all interceptors and pipelines are to be so constructed as to reduce infiltration and exfiltration to insignificant amounts. This should also be clarified on pages III-5, IV-3, and V-6.

Thank you for the opportunity to review this statement. Please let us know if we can provide further assistance.

Sincerely,

John E Raybourn

JOHN E.RAYBOURN
Regional Enviromental Officer

Response to Comments by the United States Department of the Interior, Office of the Secretary, Missouri Basin Region

1. The EPA has determined that it will not fund a wastewater facility on the South Park Elk Feedground (see Summary Sheet of Draft EIS).

2. The only aspect of the proposed alternative projects identified in the draft EIS that impacts the Wild and Scenic River designation is the discharge of effluent and the discharge structure itself that enters the Snake River. As stated in Section V of the draft, the secondary treatment proposed, will, under normal low flow conditions, meet the existing water quality standards established for the Snake River. Based upon the known standards, proposed design criteria, and the EPA's recent National Eutrophication Survey, that indicated that nonpoint pollution will continue to be the major source of pollution in the Snake River, it does not appear the water quality will limit river classification.

   The design and construction of an aerated lagoon/rapid infiltration system proposed in the final EIS meets several objectives of EPA and the U. S. Forest Service programs. The system eliminated the need for any outfall line to the Snake River. In addition, the level of treatment provided by the infiltration basins is considered adequate to protect water quality and meet applicable standards.

   The EPA plans to issue separate grants to finalize the facility plan and design the outfall to the Snake once the city and county decide upon a site. The outfall designer will be required to work with the Forest Service in developing a design harmonious with the expected classification (scenic or recreational). While we recognize that under the guidelines of the Wild and Scenic River Act instream structures are discouraged, there are really very few environmentally-sound and cost-effective solutions to the Jackson wastewater disposal problems. Flat Creek and the Snake River are the only reasonable and technically sound discharge waters. Discharge to Flat Creek would eventually require further treatment to insure the protection of its water quality.

3. A detailed description of the summer recreational use of the South Park Elk Feedground campground and the surrounding lands is available in the State of Wyoming report titled Land Transfer to the Town of Jackson, Appendix 1 of the Draft EIS. There are no other public or open recreational lands in South Park, therefore, recreation loss of the other alternatives is minimal. It is unlikely, given the stringent water quality and aesthetic standards the new facility will be required to meet, that any degradation to the river will occur that will entail the loss of recreational opportunities.

4. The EPA has decided that it will not fund the Elk Feedground site. The monitoring requirement for any site selected will be set by the Wyoming Department of Environmental Quality prior to the beginning of operation.

5. These are discussed starting on pages III-4 and III-5. All cost estimates of pipelines and subsurface structures include contingencies for dewatering and sealing.

6. The alternative construction sites and potential developable lands are all on private land. No direct impacts on Grand Teton National Park are anticipated.

7. See attached letter from Mr. George M. Zeimens, Associate State Archeologist.

8. The subsection under Natural Communities, pages II-40 through II-44, in Section II - Existing Environment, contains a summary of the fish and wildlife of the region. This information was supplied by the Wyoming Department of Game and Fish and, according to department personnel in Jackson and Cheyenne, is based on the most recent available data.

9. It is unlikely that exfiltration is ever a problem in the South Park region due to the area's extremely high groundwater.

10. The pipeline problems that have occurred in Jackson in the past were a result of improper construction inspection. Modern construction methods and the inspection requirements that the EPA now requires should insure proper construction. Mechanical or permanently sealed (adhesive sealed) pipe joints would have to be used in all high water areas to insure minimal infiltration.

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Wyoming Recreation Commission

604 EAST 25TH STREET CHEYENNE, WYOMING 82002

PAUL H. WESTEDT
Director
777-7695

COMMISSION
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PRESIDENT
1800 Morse Lee
Evanston 82930
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2007 Newton Avenue
Cody 82414
MARVIN HARSHMAN
1507 West Spruce
Rawlins 82301
BILL NATION
2221 Van Lennen Avenue
Cheyenne 82001

October 6, 1976

Mr. Edwin T. Cryer
J. M. Montgomery, Consulting Engineers, Inc.
1301 Vista Avenue
Boise, Idaho 83705

Dear Mr. Cryer:

Concerning the proposed wastewater treatment facility for Jackson, Wyoming, there are no known archeological sites on the lands involved. However, since there are a number of known sites in the general area, and since the lands involved have never been subjected to an archeological study, we strongly recommend that a field study be initiated before construction begins.

You can arrange for such a study through my office or by contacting any qualified archeologist. If I can be of any assistance with this project do not hesitate to ask.

Sincerely,

George M. Zeimens,
Associate State Archeologist
Department of Anthropology
University of Wyoming 82070

GMZ/mr
Telephone: 766-6334

RECEIVED
BOISE OCT 15 1976 OFFICE
JAMES M. MONTGOMERY
CONSULTING ENGINEERS, INC.

Response to the Comments by the Wyoming Recreation Commission

1. The field survey you have recommended will be arranged during the Spring of 1979.

United States Department of the Interior

GEOLOGICAL SURVEY

J. David Love
U. S. Geol. Survey
Box 349
Jackson, Wyoming 83001

July 22, 1977

Mr. Wes Wilson
E.P.A. Regional Office
1860 Lincoln St.
Denver, Colo. 80295

Dear Mr. Wilson:

This letter concerns the siting of the Jackson, Wyoming, municipal sewage treatment plant. I have toured the various sites proposed by the town, in company with Bruce Dietz, town engineer, Bob Lablonde, whom you know, and other concerned citizens. We also went to the Wilson Canyon site that I recently proposed for consideration. As you may recall, this site was not on the swampy flood plain, as all the others are, and is downwind from all development.

I am somewhat familiar with the area, having prepared and published six geologic quadrangle and environmental maps here (see U.S. Geological Survey Maps I-769-A, B, C, D, E, and F, which you can get from the Survey's Map distribution office in Denver). Map 769-A shows the geology of all the sites and presents a cross section near the Wilson Canyon site. This site has the following advantages over the others:

1. Water inflow into the system (currently a major problem) would not occur because the pipeline would be above the water table.
2. The leach field would extend along the Hoback fault crushed rock zone.
3. The entire system would be well above the water table.
4. The system would be downwind (the prevailing wind is from the southwest) from all present development.
5. Outflow (if any) could be piped into Flat Creek at a place where the water level and channel are stable and where the input area does not involve any ranches.

Disadvantages:

1. Effluent (if any is to be involved) from the South Park development area would have to be pumped uphill 100-200 feet.

Other considerations:

1. Leakage into the water table. An old well at the Wilson Canyon site show the water table to be at least 75 feet below the surface.
2. Aesthetics. The installation would not be conspicuous as long as it is entrenched.
3. Interference with present development: None.
4. Lubrication of Hoback fault plane. Effluent would not be under pressure (as for example, in contrast with water in reservoirs) so I doubt that there would be any significant effect.
5. Contamination of water table or springs. There are no springs in the are and the water table at a homesite development half a mile northwest is at about 300 feet depth. I doubt that any contamination would occur here or to the south along the Snake River but to be sure, tracer dyes could be put into an experimental well at the site and in water at the head of Wilson Canyon (the lower canyon is dry).

Suggestions:

1. Cable tool about six 150-foot holes along and across the Hoback fault zone where it crosses the bottom of Wilson Canyon to get water table data, width of crushed rock zone, and permeability of the zone.

2. Put tracer dye in these holes to see if water encountered emerges at the surface anywhere. It may not.

3. Design a leach system that could most efficiently be kept from plugging up. Surely California can provide some practical experience from similar situations.

In conclusion, I hope you will give these matters some consideration because the town needs all the constructive input that it can get. I neither favor nor disapprove of any particular site. They should all be evaluated impersonally from a long-range standpoint, and on the basis of cold hard economics.

Sincerely yours,

J. David Love

J. David Love

Response to Comments by the United States Department of the Interior Geological Survey

While Mr. Love's recommendation may have merit as a method of disposing of treated effluent, the unknowns are of such a magnitude as to make it a somewhat impractical consideration for Jackson. Due to the town's existing problems, and the need to make the necessary improvements to their system as soon as possible, the resolution of research and environmental problems in pursuing this proposal would delay the implementation of a final system even longer.

The Wilson Canyon site proposed by Mr. Love would require the pumping of all wastewater generated in the town and South Park. It may also be necessary to inject the effluent into the fault zone, if the permeability of the surface and subsurface material will not accept the wastewater in sufficient quantity. In addition, a primary treatment plant would have to proceed any leach field disposal system. Solids and grit, which are common constituents of municipal wastewater, could render the proposed leach field inoperative in a short period.

Based upon the pumping requirements, cost of primary treatment and sludge disposal, and the unknown reliability factors inherent in an experimental system such as the one proposed, Jackson with its limited financial capabilities and no standby system, would be better off to pursue a more traditional approach to its wastewater problem.

The proposed system would have several advantages if the discharge requirements to the Snake River were strengthened and it was necessary to provide advance treatment or seek another disposal point. It may be more cost effective, if this was required at a later date, to pump treated secondary effluent back up to the Wilson Canyon site rather than provide advanced treatment. The USGS may, as a special project, want to look into the feasibility of this proposal and conduct the proposed testing as a special federal research project.

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

June 30, 1977

Mr. John A. Green
Regional Administrator
U.S. Environmental
Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado 80203

Dear Mr. Green:

Subject: Jackson Wastewater Treatment System
Draft Impact Statement

In compliance with the National Environmental Policy Act of 1969, Office of Management and Budget Circular A-95 (revised), and the Wyoming State Review Procedure, the State of Wyoming has completed its review of the above referenced statement. Please note the attached comments.

Thank you for providing an opportunity to review this statement. We are looking forward to receiving notification of the progress of this project.

Yours sincerely,

Ed Herschler

EH/trb

Attachments

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Environmental Quality

AIR QUALITY DIVISION

HATHAWAY BUILDING
CHEYENNE, WYOMING 82002
TELEPHONE 777-7391

MEMORANDUM

TO: Robert E. Sundin
Director
Dept. of Environmental Quality

FROM: Woody Russell
Air Quality Engineer
Air Quality Division

SUBJECT: Town of Jackson Wastewater Treatment System

DATE: June 22, 1977

The expansion and improvement of the existing wastewater treatment plant or the construction and operation of a new one will have little, if any, impact on the ambient air quality, except during the period of construction.

The possibility of secondary impacts exists if one of the South Park sites were chosen. As stated in the E.I.S., the remote location of a treatment plant in the South Park area will open that area to development. Such development could cause an increase in emissions of particulates, oxides of nitrogen and carbon monoxide.

Baseline ambient air quality data other than particulates is unavailable and the impact of the wastewater treatment plant and resulting development cannot be ascertained.

THE STATE OF WYOMING

ED HERSCHLE
GOVERNOR

Department of Environmental Quality

Water Quality Division

HATHAWAY BUILDING
CHEYENNE, WYOMING 82002
TELEPHONE 307 777-7781

JUN 27 1977

MEMORANDUM

JUNE 24, 1977

TO: Robert E. Sundin, Director

FROM: Don Armstrong, Environmental Engineer DA

SUBJECT: Draft, Environmental Impact Statement, Jackson Wastewater Treatment System

The subject statement has been reviewed and the following comments are offered:

1 1. The statement adequately addresses the water quality impacts of the proposed action with the following exception: propound standards for the Snake River include a no degradation policy of the river. The impact of the proposed standards on the proposed action should have been discussed.

2 2. Page V - 32 - Alternative 6, states "once the Town of Jackson has exercised its priority in terms of E.P.A. funding to upgrade the existing plant", it is unlikely that additional Federal funding assistance will become immediately available to construct a new facility." This statement is incorrect and should be further clarified. It is presumable that if the existing Jackson plant was upgraded with solids handling and chlorination, sufficient time would be afforded to properly evaluate the Wild & Scenic River impact and the proposed standards changed without eliminating the possibility of Federal funding.

CC: File

DA:jcf

Response to Comments by the State of Wyoming Department of Environmental Quality, Water Quality Division

1. If, as Mr. Armstrong proposes, an enforced nondegradation policy were adopted for the Snake River, then the town would have two options: either to increase its level or treatment, or seek an alternate disposal site.

   Since a literal interpretation of "no degradation" would require the effluent to be of equal or better quality than the water in the river, a very high level of treatment would be required. The background levels of contamination from nonpoint sources are relatively low in the stretch of the Snake adjacent to the Town of Jackson. Realistically, a no degradation standard would require a treatment plant that could provide nutrient removal, ammonia removal, de-chlorination, trace organic removal and complete solids and BOD reduction. In theory, a plant similar to that at Lake Tahoe (probably the most advanced in the country) would be necessary. Quite simply, a facility of this type is presently beyond the financial and operational capabilities of the town. If such a system were required, a complete federal funding would be necessary, and for a number of years a federal operation and maintenance grant would be needed to ensure proper operation. Without the assistance of a federal research grant and operational assistance, a plant of that type envisioned would not be within the realm of possibility for a community the size of Jackson.

   The other alternative of discharging secondary effluent to an alternative source has limited applicability in the Jackson area. Geophysical and geohydraulic characteristics of the region limit the potential for land disposal (see response to letter by USGS). Flat Creek is the only alternative surface water to which treated effluent could be discharged. As shown on pages V-2, V-3, and V-4, this discharge at design flow would severely degrade the water quality of Flat Creek. While no data is available, on the assimilative capacity of Flat Creek, we would have to question whether the Snake River would be degraded by an effluent-loaded Flat Creek discharging into it below the Elk Feedground.

   Since the EPA has, based upon several studies of the Snake River, decided at this time to fund only secondary treatment for Jackson, the proposed "nondegradation policy" would require a substantial realignment of the federal and local approach to wastewater management. Because of the economic and social impacts the proposed change in standards would have, it would necessitate careful analysis of its water quality benefits against probable adverse affects. It is questionable that within the practical capabilities of the community if the proposed "nondegradation policy would be compatible with the continued growth of the Jackson area. In other words, total "nondegradation" of the Snake River may not be possible if Jackson is to follow the growth projection presently proposed. While the above statement points out unfortunate but basic flows in our pattern of civilization, it is a fact that must be dealt with in a practical manner.

2. EPA has stated that once funding were obtained to upgrade the facility, additional funding would not be immediately available to the Town of Jackson to construct a new facility. How soon Jackson could have restablished its position on the priority list after such a decision is debatable, but the needs of other Wyoming communities would undoubtedly be considered in any decision by EPA to fund such a facility for the Town.

COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT - JACKSON WASTEWATER TREATMENT SYSTEM - JACKSON, WYOMING

PAGE I-8 - COMMENT

1 Option A of Options available to Jackson seems inconsistent with the statement on the summary sheet that EPA has decided not to fund this option. How does updating the design capacity make this more acceptable.

II-54-55

2 Livingston employment forecast is 5 to 7.5 percent over the next 15 years. Is this as stated or should it be per year. If it is over the next 15 years how do you justify a population increase of 6% per year.

3 A growth rate of 6% per annum, which doubles population every twelve years, is extremely high and must be justified by some type of data.

The State Planning Coordinators office has projected that population will increase in Teton County from 6,983 in 1977 to 7,368 in 1985, a 7/10 of 1% increase per year. Also according to the Bureau of the Census, only 55% of the county population has resided in Jackson during 1970 to 1975.

WYOMING
DEPARTMENT OF ECONOMIC
PLANNING AND DEVELOPMENT
5/24/77

Response to the Wyoming Department of Economic Planning and Development

1. This decision was based upon the results of the Draft EIS and, as such, is the EPA's response to information presented. The Elk Feedground site will not be funded under the Construction Grants program.

2. The sentence in question should read: .....employment forecast of 5.0-7.5 percent annual increase in........ This figure was justified by Mr. Livingston on the basis of historic trends. The reader is referred to pages 43-45 of Teton County Growth and Development Alternatives, 1976, available through the Teton County Planning Office for a complete discussion of employment projection criteria.

3. Within the last five years, the population of Teton County has increased at an annual rate of 4.7 percent. Given the obvious building boom in the Jackson area, the 0.70 percent annual increase cited by the State Planning Coordinator appears unrealistically low. While a 6 percent growth rate may seem excessive when approached from a traditional planning standpoint, facility designers must size critical municipal facilities for the maximum growth that can be reasonably expected in order to avoid costly interim expansions. Bonding capacity and financial resources are normally planned on the basis of expected capital commitment. If a wastewater plant requires expansion prior to the retirement of existing debts, municipal bonds necessary to finance that expansion may be difficult to sell.

   A 6 percent annual population increase may be somewhat high given the limited employment opportunities in the area. But, until a thorough economic baseline study is undertaken, a straight-line historic projection presents a conservative approach for facility sizing. The 6 percent annual population growth rate was also used to obtain the treatment plant capacity for 1995.

JUN 8 1977

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Wyoming Recreation Commission

604 EAST 25TH STREET
CHEYENNE, WYOMING 82002

PAUL H. WESTEDT
Director
777-7695

COMMISSION OFFICERS
JACK D. OSMOND
PRESIDENT
P. O. Box 216
Thayne 83127
REGNALD BAFFORD
VICE PRESIDENT
P. O. Box 625
Lusk 82225
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Rawlins 82301
ALBERT PILCH
1800 Morse Lee
Evanston 82930
DUANE REDMAN
Dubois 82513
E. LAWSON SCHWOPE
900 Fover Avenue
Cheyenne 82001

June 8, 1977

77-125D

Mr. Dick Hartman
Governor's Planning Office
2320 Capitol Avenue
Cheyenne, WY 82002

Dear Mr. Hartman:

Reference is to State Identifier No. 77-125D, Jackson Wastewater Treatment System, Town of Jackson, Wyoming--a D.E.I.S. by the U. S. Environmental Protection Agency.

This proposed wastewater treatment system, whatever alternative is finally adopted, does not pose a great threat to the cultural environment. But it does, in most alternatives, necessitate trenching which extends over considerable linear distance. The Statement acknowledges that discussions with the State Historic Preservation Officer (SHPO) and the State Archeologist have stressed that evidence of prehistoric cultures in the general area could be significant.

While the Statement agrees that an archeologic reconnaissance should precede any projected ground disturbance, it rejects the need to have an archeologist present at actual trenching unless the reconnaissance indicates heavy prehistoric activity. However, most of the subject area has been exposed to ground disturbance for upwards of a century so that remaining evidence of prehistoric cultures could be limited. Trenching may discover one or more scientifically important sites which reveal little or no evidence on the surface. Some arrangement needs be made through the State Archeologist to have all trenching monitored by someone capable of recognizing cultural evidence.

Sincerely,

Paul H. Westedt, Director and
Wyoming State
Historic Preservation Officer
By:

Ned Frost

Ned Frost, Chief
Historical Division

PHW/NMF/mlr

cc: George Zeimens
Associate State Archeologist
Department of Anthropology
University of Wyoming
Laramie, WY 82071

Response to Comments by Wyoming Recreation Commission

1. EPA intends to require that Town of Jackson obtain professional archaeological services to conduct an archaeological survey prior to construction of the proposed wastewater facilities. The construction contract will require the contractor to cease trenching activities if any apparent artifacts are discovered. The City Engineer will be required to enforce this provision of the contract. However, EPA does not believe the present information of the extent of prehistoric activity would warrent the expense of a full time archaeologist on the construction site. Should the preconstruction survey delineate certain areas as possible prehistoric or cultural evidence, an archaeologist will be hired to supervise construction activities for the remaining portions of the project, as determined to be necessary by the State Archaeologist.

THE STATE OF WYOMING

Commissioner of Public Lands and Farm Loans

STATE CAPITOL BUILDING CHEYENNE, WYOMING 82002

June 1, 1977

PLEASE ADDRESS REPLY
TO THE COMMISSIONER

Regional Administrator, Region 8
U.S. Environmental Protection Agency
1860 Lincoln Street
Denver, CO 80295

Dear Sir:

Reference EPA-908/5-77-002 Draft EIS Jackson Wastewater Treatment System Town of Jackson, Wyoming, we wish to remind you that this office is responsible for the administration of the State land in the considered Boyles Hill Alternative Sites A2 and A3. Please keep us informed as the final site is determined.

We do not concur with the woodland acreage figure of 1,175 in Table 8 on Page II-46. The State Forester is charged by Wyoming Statute to collect data relative to forest conditions in Wyoming and his records indicate 16,499 acres of forest land in private ownership in Teton County, Wyoming.

Thank you for the opportunity to comment.

Very truly yours,

Bryce E. Lundell

Bryce E. Lundell
Asst State Forester

BEL/cs

Response to Comments by the Wyoming Commissioner of Public Land and Farm Loans

Figures for land use on private lands were taken from the Master Plan for Teton County, 1970. Acreages were compiled by the Teton County Soil and Water Conservation District, Jackson, Wyoming.

The apparent discrepancy in the "woodland" category as originally presented in Table 8 of the draft is attributed to the fact that much of the forested land area in Wyoming is also used for grazing. A significant amount of this land was probably placed in the "agriculture" category.

Table 8 has been revised to correct the discrepancy. Approximately 16,499 acres, or 21.9 percent of the private lands in Teton County are shown as woodland.

P.O. Box 2355
Jackson, Wyoming 83001

July 6, 1977

Mr. John A. Green, Regional Administrator
Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80295

Dear Mr. Green:

I wish to present my personal comments in regard to the location of the Jackson Sewage Treatment Plant at the South Park Road site.

From the very beginning of the project, the elected officials from the Town of Jackson have expressed their desire to see the treatment plant constructed at the southernmost end of South Park. There are many good reasons for holding this position, as a southern site would service the largest acreage of developable land, allow all wastewater to flow by gravity to the plant, and remove the existing treatment facility from Jackson's natural path of expansion.

At the same time, it is well recognized that the southernmost site would have several undesireable features. A much longer and consequently more costly sewer system would be required. The pressure for development would be increased in a county which already experiences a relatively high rate of growth. Furthermore, the South Park location by accomodating scattered single family home development, would conflict with the goals of the proposed comprehensive land use plan to limit high density residential development to lands adjacent to existing urban areas.

However, I feel that many of the issues vitally important to the future of Jackson and Teton County concerning the South Park Road site are often overlooked or misrepresented. By setting the precedent of providing wastewater treatment facilities throughout South Park, Jackson or Teton County would be committed to providing additional services -- water, police protection, schools, road maintenance, etc. -- for new urban areas at some time in the future. The services cost money and the local taxpayer would pay the greatest share. Also, total capital and maintenance costs would be greater than the projected cost estimates indicate as a treatment facility located in South Park could accomodate a much larger population than the other alternatives evaluated in the Environmental Impact Statement and would accordingly have many of its structures designed larger.

Again, the taxpayer, in an area where low taxes and minimum public services have been the rule, would pay the extra costs. In addition, the population which the South Park sewage treatment plant could promote, would as it has in the case of other developing areas of the country, change existing rural character of Teton County which many of the residents prize so highly, increase the potential for crime in new urban areas which many people have come here to escape, and detract from the scenic beauty that has attracted residents and visitors alike to the valley from the very beginning.

I simply wish to ask the Town Council and decision making officials to weigh both the present and future impacts of a South Park Road site extremely carefully and realize that the ultimate decision will play an important role in determining what happens to Jackson and Teton County in the coming years.

Very sincerely yours,

Robert T. Ablondi

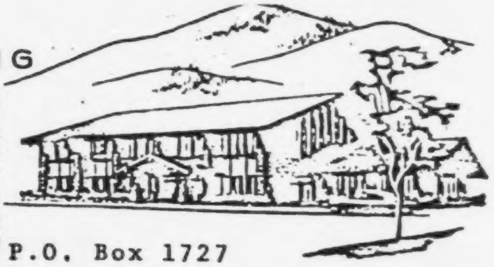
Response to the Comments by Mr. Robert Ablondi

EPA agrees that undesirable features that would be expected to accompany rapid development are negative effects of the proposed interceptor and plant location. The adopted Teton County Comprehensive Plan reduces this impact by requiring well planned developments. Even without the long interceptor line, South Park would develop albeit at a slower rate. The plant size did not change however as a result of this southernmost location. EPA determined that the long-term historical rate of 6% per year would be used for plant sizing. Thus the costs of the proposed system did not increase by virtue of this southern location. Of course, the opportunity to develop South Park which will be enhanced by the new interceptor will likely mean an earlier than expected need to expand the facility. The draft NPDES permit requires the City to begin new planning at 80% capacity. New facilities will be the financial responsibility of the Town of Jackson.

County Commissioners:
WILLIAM H. ASHLEY
Chairman
J. MAX MAY
MARY F. MOORE

JOLYNN COONCE
County Clerk
MARGARET FEUZ
Treasurer
EDNA E. JONES
Assessor
BARBARA OAKLEY
Clerk of Court
STEVEN W. ROGERS
Sheriff
DONALD TERRY ROGERS
County Attorney
JOHN C. MOYER
Road Supervisor

STATE OF WYOMING
County of
TETON
P.O. Box 1727
JACKSON, WYOMING 83001



July 6, 1977

Mr. John A. Green, Regional Administrator
U.S. Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80203

Dear Mr. Green:

I wish to offer my comments on the Environmental Impact Statement on the proposed wastewater treatment plant for the Town of Jackson, Wyoming.

Our staff has reviewed the EIS and finds that it was well prepared and is in accordance with our proposed 208 Areawide Waste Treatment Management Plan. I personally attended the public meetings and the hearing and found that they were effectively conducted.

The staff of the 208 Planning Agency has had a very cooperative relationship with Mr. Wes Wilson of EPA and Mr. Ed Cryer of James M. Montgomery Engineers, Inc. We provided some of the necessary data and found that our comments made to them were well received. These gentlemen should be commended for their efforts.

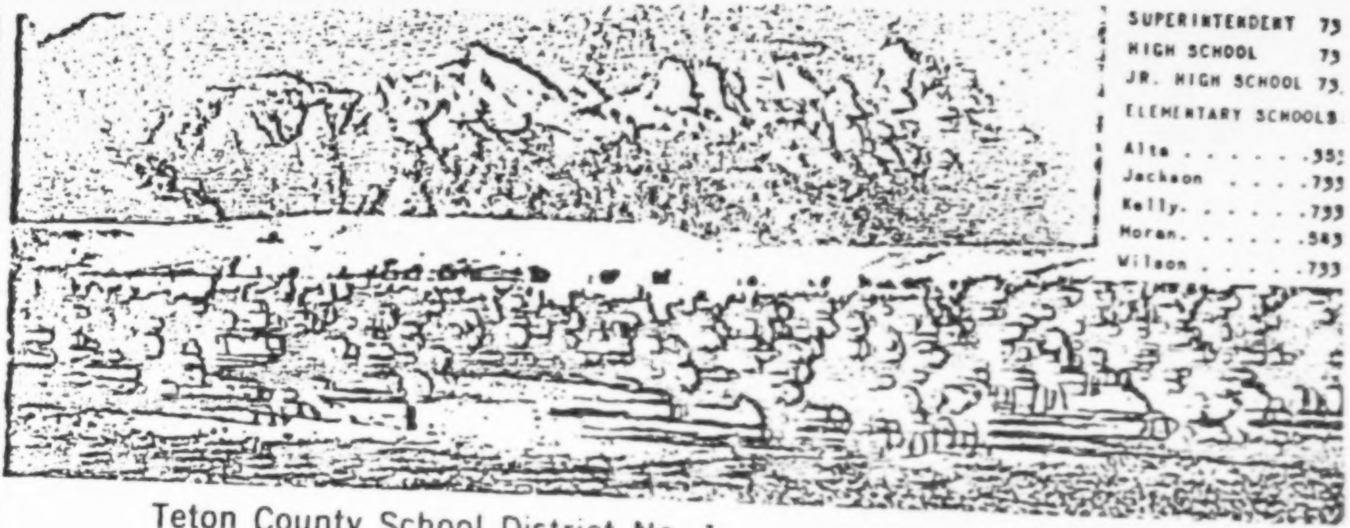
Thank you for letting me take a few moments of your time to comments on the EIS.

Sincerely,

Eugene P. Zeizel

Eugene P. Zeizel, Ph.D.
Project Director
208 Planning Agency

EPZ/jeb



SUPERINTENDENT 73
HIGH SCHOOL 73
JR. HIGH SCHOOL 73
ELEMENTARY SCHOOLS
Alta 35
Jackson 733
Kelly. 733
Moran. 543
Wilson 733

Teton County School District No. 1
box 568, jackson, wyoming 83001

June 28, 1977

A STATEMENT BY THE TETON COUNTY SCHOOL DISTRICT RELATIVE TO THE ALTERNATIVES SUGGESTED IN THE IMPACT STATEMENT OF THE JACKSON WASTEWATER TREATMENT SYSTEM.

In as much as the County School District has a newly acquired 25 year lease on 40 acres of property immedaitely adjacent to the existing wastewater facility. the school district does have a vested interest in the future plans for the Jackson Wastewater System.

Undoubtly alternatives A-5, a stabilization pond near South Park Road,and Alternative A-7, no action,have the greatest potential for impact upon the school system.

A-5 as quoted from the study, "would open a larger amount of land to be serviced by gravity flow", this means new home construction, which means new families, which means children and students. We can plan for that eventuality.

A-7 would provide an incompatible circumstance, relative to quote from the study, "do nothing further to improve the condition their wastewater system, reduce odor problems and the water quality degradation that is presently occuring. We cannot plan proper school site development if that is the choice.

National Wildlife Federation

1412 16TH ST., N.W., WASHINGTON, D.C. 20036 Phone: 202—797-6800

June 10, 1977

Mr. John A. Green
Regional Administrator
U.S. Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80295

RE: Draft Environmental Impact System, Jackson Wastewater Treatment System, Town of Jackson, Wyoming (EPA-908/5-77-002)

Dear Mr. Green:

The National Wildlife Federation applauds the EPA's decision not to fund the above-referenced project at the proposed location, the South Park Elk Feedground. We concur completely with your determination that the environmental impacts, (particularly the land use impacts) of this alternative are not acceptable.

We recommend alternative A-3, a Stabilization Pond at Boyle's Hill, as the most environmentally and economically sound solution to Jackson's water pollution problem.

In light of the rapid population growth in this area, we also strongly recommend the selection of a ten-year design life for whatever project alternative is chosen.

Thank you for this opportunity to comment on this project.

Sincerely,

Thomas K. Bick
201 Project
Resources Defense

TKB:kmb

Response to Comments by the National Wildlife Federation

EPA has decided on the selection of a 15-year design life since the cost analysis indicated no advantage to a shorter one. It should also be noted that EPA used a relatively conservative annual growth rate of 6% in the development of the facilities plan, rather than the Town's 10-12% estimate which was based on the most recent population increases experienced during the last 18 months. EPA determined this growth rate could not be sustained during the 15-year design life, and based plant capacity on the long-term (1965-1976) historical growth rate in Jackson.

The Wilderness Society · [illegible]
Telephone (307) 635-3416

7/8/77

JC

Mr. Wes Weston
EPA -- Region VIII
1860 Lincoln St.
Denver, Colorado 80203

Dear Wes:

I have a few comments to make concerning the proposed wastewater treatment plant in Jackson Hole, Wyoming.

First of all, I support your decision to reject the proposal that would locate a plant in the South Park Elk Winter Feed Ground.

Secondly, the protection of the integrity of the Snake River is of great importance to The Wilderness Society. Any decision on your part must not compromise the natural river values of the Snake.

At this time, I must support Alt. #1, construction of a new facility at the present site. I feel that such a move would prevent disruption of wild and scenic river values of the Snake; there will be discharge into Flat Creek, but your report states that such a discharge will not cause ill-effects on the fishery or public health. Furthermore, Alt.#1 would prevent disruptive land use patterns in South Park. South Park is a very sensitive scenic area at this time, and is an important component of the proposed National Scenic Preserve for Jackson Hole.

I'm sorry that I was unable to attend the hearing in Jackson. I hope that these comments are helpful to you.

Sincerely,

Bart

Bart Koehler

"In Wildness is the Preservation of the World." Thoreau

Response to Comments by the Wilderness Society

The aerated lagoon/rapid infiltration system alternative at the Lower Bench site does not involve an outfall line to the Snake River, and thereby does not conflict with the management ofjectives and guidelines of the Wild and Scenic River Act. The rate and number of hook-ups to the central wastewater treatment system in Lower South Park will be determined by the Town of Jackson and Teton County prior to the system becoming fully operational in 1980.

Hans Buehler
Skyline Ranch 7
Jackson, Wyoming, 83001

Mr. John A. Green
Regional Administrator
U. S. Environmental Protection Agency
Region VIII
1860 Lincoln Street
Denver, Colorado, 80203

Reference: EPA-908/5-77-002
Jackson Waste Water Treatment System
Town of Jackson, Wyoming
Draft Environmental Impact Statement

Dear Mr. Green

My name is Hans Buehler, and my address is as indicated above. I am a private citizen. I attended the Public Hearing on the above matter on June 28,1977, at the Teton County Courthouse. While I did not read a prepared statement, I did ask questions and present opinions. These will be noted in the records of the recorder present.
I find the Draft EIS quite detailed, and it is a little difficult to sort out all the extraneous information and get to the heart of the matter. I feel, that after considerable study, I have been able to do this, and have come up with several concerns that have not been fully answered or considered in this Draft EIS.

The first concern deals with PageI-2 and relates to the matter of infiltration and inflow to the existing sewer system. I was noted that EPA had determined it was cost effective to correct approximately 600,000 gpd of the peak infiltration, which represents 75% of the infiltration and inflow. I would like to look at this problem a little more in depth, because I note on Page III-3, Table 13, Population and Flow Estimates some further information dealing with this subject in determining the maximum flow for the design criteria for a proposed plant.

If one uses you data that a resident uses 120gpc, and a non-resident 50gpc, one can calculate all the flows in terms of Residents. Consider the data for the year 1990, one can conclude that the 12900 non-residents, in terms of flow are equivalent to 5426 residents. The so-called non-correctible infiltration is equivalent to 1753 residents, and the expected new infiltration is equivalent to 1002 residents. Thus the proposed plant flow is equivalent to 17781 residents. The combination of the infiltrations represents a flow equivalent to 2755 residents, or 15.48% of the total equivalent residents to be served by the new plant. However, this is not really the picture, since the equivalent residents are relly only the true residents, 9600, and the 5426 equivalent residents represented by the non-resident flow. Thus the infiltration is 18.33% of the people caused flow. If one considers that the non residents really hve nothing to do with the inflow, then the present inflow, and the projected inflow represents 28.70% of the flow of the residents. This would seem to indicate an extremely high rate of poor sewer connections, or poorly constructed mains, or badly fitting man hole covers. I t further indicates that a plant is being built at least 15.48% above required capacity jus t to handle this inflow. Plese look at Page IV-11 under the 1990 column, and eliminate those items that are not necessarilly volume related in terms of capital costs. Under this alternative, I believe the following items woul have to be done regardless of the size of the plant:

By-pass and Abandon Communitor	$19000
Renovate Sewer Pumps	71000
Conversion of Aeration tanks etc.	58000
Electrical	129000
Landscaping	19000
	$ 296000

Thus $2,117,000 - 296000 = $1,821,000 as capital cost which is size related. Considering the excess capacity required due to the inflow, 15.48% represents some $282,000. This represents 10.7 % of the total cost of the project of $2,625,000. Now turn to Page IV-19, and considering the present worth (1990) of A-1 @ $6,508,000, the 10.7% represents a value of $699,000. It is logical to assume that the O&M costs would be reduced by this same amount, sine electricalusage, maintenance, and chemical costs etc. would be less. Therefore, in 10 years we would be investing $699,000 just to handle this inflow. As I understand from Mr. J. Brooks of the Evaluation Branch, the project to remove the first 600,000 gpd of inflow and infiltration cost about $280,000. It would seem from the above, that additional moniesshould be invested to remove a greater portion of this non-polluted load from the sewer system, and also make sure we do not have 120,000gpd new inflows entering the system. In the event there are homes, firms or businesses who have their roof drains tied into the sanitary sewer, there should be a stipulation in the project that all such drains will be removed by the owner at his expense. This can be handled by an ordinace by the City of Jackson, and compli= ance by the City Engineering Dept. Perhaps in the new sewer lines to be built and connected under whichever alternative is selected, better specifications and compliance are required to drastically reduce the 120,000 gpd the estimate shows will be the new inflow. It is not economically feasible to pay capital, debt, or operating dollars to treat infiltration. Prevention is the feasible solution.

My second major concern is the subject of stabilization ponds. I feel the term stabilization ponds is a misnomer, because if they were stabilization ponds, then there would be no odor. I feel they should be called what they really are, lagoons. In reading the Draft EIS, and The Draft EIS Summary, it is noted that lagoons have a tendency to cause odor in the spring and summer. This is true, and in an area where aesthetic values and tourism are of great concern sewer odors should not be tolerated. Mr. Wes Wilson acknowledged that there will be odors, especially in the spring at thawing time. Spring thaws are as late as June in this area. Again in the EIS, Page III-4 there is the statement by the writer of this EIS that there is little information on the type of pond operation proposed by the facility consultant. Earlier in the dialogue it indicates it has been recommended by the faciliyt enginneer that the lagoon system consist of a deep (10') 3 cell stabilization pond. The first 2 cells would be partial mix systems providing enough aeration to stabilize the organic load in the upper layer, while the lower portion would remain anerobic facilitating solids digestion in the warmer months. Since little is known about this system, how can EPA accept such a proposal as an alternative. At the meeting, a representative from the facility engineer indicated that the system would be a total aerated system. Even they do not know what they are proposing. Later in the dialog, it states "if operated properly it should meet the 30mg/l BOD standard, but it may require additional treatment to consistently meet the 30mg/l SS. I question whether an identical system is installed, has been operating and meeting tthe above stanards in a climate such as is encountered in Jackson, and where about 56% of the flow is due to non residents, and thus highly variable. 2 Lagoons are not good systems where we have large changes in throughput, and this is especially true in the summer. They just cannot handle such swings in throughput as a 1.62 peak to maximum. This means the retention time well be feduced for that period by 63.6%.

There has never been, to my knowledge, a lagoon system that did not give give up odors most of the time, and at times was really foul due to the anerobic digestion process giving off methane gas which caused the top layers of organic matter to be breeched permitting the gas and the H_2S odors to escape. The releasing of the gas from the anerobic area causes belching of not only the gas but the solids from this area, thus mixing the non stabilized organic solids from the depths with the stabilized blanket, causing a stinking mess. This particular action is mos prevalent in the warm months. This is also the time when most tourists visit this area to partake of our pristine environment. With a lagoon system our area will be a "stinking mess", and we will be driving away the very people we want to come to this area, The Tourist. At the hearing, it was indicated that the odors would be evident for only ½ mile around the plant. I have lived in Southern California for some 8½ years and have travelled the Pomona Freeway (Calif. 60) mant times heading east past the Ontario, Calif. sewage disposal plant. The odors stretch for seceral miles from this location. This is also tue for the Huntington Beech pland located just north of the east end of the Huntington Beech State Park.

We have mild inversions here, but also have prevailing southwesterly winds which will send the odors northerly to the City of Jackson, so the tourists will be able to take full benefit of this smell.

1 Ihave had som 20 years experience with lagoons (stabilization) ponds working for a paper producing company in tthe mid west. I am acquainted with upsets, flow variation, odor, paint discoloration, fish kills, claimed animal kills, etc., etc. Lagoons are no for Jackson.

In this particular internationally known area , it is mandated that

5

that all possible be done to protect the environment in every respect. This leaves no alternative but to install a tried and true Mechanical Secondary System. Certainly the cost is more, but on a flow basis, .65mgd is the result of the tourists, and 1.15 mgd is the result of the residents. Tourism's share is 36% of the total. Why should they no pay their share. Last night I received you sheet indicating the cost per resident for the various Alternative, however there was not indication how the calculations were made. It would seem that the cost of treating sewage could be related to the usage of water. Since Jackson provides the water from wells to the residents, this can be metered and through calculations a sewer charge determined. In this way, restaurants, motels and such that cater to the tourist could bebilled for the sewer costs and pass it on to those using their facilities. Another, and possibly a simpler method woul be for the city to have a room tax for all motels, and a small city tax for restaurants who are on the sewer system. A city tax is no an uncommon thing in the U.S. The result would be the proper allocation of costs to the user. This now seems to be the governmental method of doing things a s evidenced by EPA in requiring industry to pay their fair share of the capital and operating costs to treat their specific waste, COD,SS, Flow, Peak Flow, etc. Why is the same requirement not fair for those who use the sewer system of Jackson.

I appreciate the opportunity to write this letter, and express my thoughts and opinions on this vital enviromental problem of the area of Jackson Hole. While I recognize I do not live in Jackson proper, it is evident that in the future years septic tanks and leech fields will be a thing of the past, and all will have to attach to a city or county sewage system. Thus I feel I will become involved, and thus the above comments should be considered as one concerned with the future of this area. I suggest the EPA review the Alternatives, and eliminate all the present lagoon alternatives, and in their place substitute new alternatives involving, and encompassing Mechanical Secondary Treatment. This type of Alternative will be compatible with the Comprehensive Plan now being developed, and will provide , and assure the highest quality wate water to either the Snake River or Flat Creek, and retain the pristine environment of Jackson Hole for those who live here, and for the more than 3,000,000 visitors who cone to see our Grand Teton National Park and Jackson.

Sincerely yours,

Hans Buehler

Hans Buehler

cc: Mr. Ralph Gill
Mayor,
Jackson, Wyoming

Response to the Comments of Mr. Hans Buehler

1. The infiltration allowances were calculated on two separate basis. The first is the existing infiltration which will not, according to the EPA funded Infiltration/ Inflow Analysis, be corrected by the sewer rehabilitation work being conducted this summer. This 0.21 mgd peak infiltration will remain constant through the design period according to our assumption. The second I/I figure is realy based on area served, not population. The accepted I/I allowance for new sewer construction has been approximately 300 gallon per acre service per peak day. We estimated approximately 380 new acres would be put in development by 1990 and calculated out the 0.12 mgd expected peak infiltration. It appears Mr. Buehler has misinterpreted our analysis, and we hope this clarifies the figures presented. The 0.33 mg of peak infiltration expected by 1990 is a figure which is conservative. Jackson has, in the past, suffered from poor sewer installation, but with the assistance of a full time city engineer and the use of reliable construction inspection, it should be possible to keep new infiltration at a minimum. Unfortunately, it is not cost effective to remove all the existing infiltration as presented in the EPA I/I analysis. Much of this came from old house laterals and clandestine storm water and runoff discharges into the system.

2. Facilities of the type proposed can work in cold climates. Stabilization ponds are still the most common form of treatment facilities for smaller communities. While systems vary as to design and effectiveness, the major problems result from high spring loading and improper operating and maintenance procedures. It's necessary to keep in mind that the proposed facility will be mechanically aerated (at least partially), and capable of handling peak organic loading if properly designed. The higher summer loading rates could cause odor and effluent quality problems unless the system is designed to handle the peak day design flow. Retention times and loading criteria are normally calculated from the maximum day expected flow that could occur at the end of the design period (1990) and still provide a final effluent of the required quality.

3. While the "stinking mess," Mr. Buehler refers to, is somewhat extreme, even a properly operated stabilization pond will have odor problems. The degree of these problems depend upon the organic loading rates, the climatic (temperature, rainfall) conditions and the design and operation of the system. In the Jackson area, spring is the time when the greatest odor problems will be encountered if the facility is inadequately sized to handle peak summer flow.

4. Stabilization ponds used to treat paper mill wastes have problems similar to those used in domestic systems. The major problems come from inadequate sizing and the buildup of excess amounts of septic sludge on the bottom. The odor and paint discoloration problems cited for pulp mill waste ponds is somewhat unique to that industry and arise from the chemicals used in the cellulose digestion process.

5. The revenue and financial plan included in the draft EIS, and made available at the public hearing, presented a detailed explanation of an equitable service charge program for each alternative being considered. Under the EPA guidelines, each user in the system must pay its fair share of the capital and O & M cost based upon total contribution (flow and loading). As detailed in the plan, tourist-based businesses (i.e., motels, restaurants, etc.) will be required to assume the financial responsibility for their share of the system. The reader is referred to the Preliminary Financing and Revenue Program for Jackson Wastewater Treatment System for a detailed discussion of use charges.

July 1, 1977

James H. Gilbert
P. O. Box 2505
South Park
Jackson, Wyoming 83001

Mr. John A. Green, Regional Administrator
U. S. Environmental Protection Agency
1860 Lincoln Street
Denver, Colorado 80295

Dear Mr. Green:

As a homeowner in South Park, I wish to offer the following comments relating to EPA - 908/5-77-002 Summary Draft Environmental Impact Statement, Jackson Waste Water Treatment System, Town of Jackson, Wyoming:

1 1). I question whether in the financial analysis of comparative costs of A1 through A5, the study has included the cost of three separate outfall lines per plant for Alternates A2 through A5.

2 2). Inasmuch as the river is less constricted as one proceeds upstream from A5 to A2, the adverse environmental impact both visual and odor in the river bed will increase from A5 to A4 and onto A2. A2 outfall system will have the most detrimental impact both visual and odor.

3 3). I suggest the cost of three pipeline outfall systems will be incrementally greater as one proceeds from A5 to A2.

4). Regardless of the constructive intent of the design engineers, the odor pollution of the environment with lagoons will be significantly greater than a mechanical sewage disposal system.

4 5). With both the extremes of temperature and water table the lagoon system will inevitably result in dramatic air pollution. The wind-carried odor will affect all within a one-mile radius of the plant.

6). A tertiary plant would have the least odor impact on the environment. The less effective secondary plant is compromise enough in its odor impact on the environment. The environmental quality of Jackson Hole including South Park is world reknown, and at the same time so fragile. Although a tertiary plant would be the best solution, a secondary plant is compromise enough.

7). To consider building a new facility at Boyles Hill (A2) located as it is at the north end of South Park would be a less than logical decision. This would not stop development in South Park, but it would dictate septic systems throughout South Park, probably one or more pumping stations in the future, probably small private sewer plant systems, and eventually construction of a sewage plant at A5.

Therefore, I recommend:

1). As first priority the construction of a secondary plant at A5.

2). As a second priority the completion of original design plus any changes necessary to make this plant at A1 efficient. At the same time the acquisition of land today in the A5 area for the plant which will be required in the future.

Very truly yours,

James H. Gilbert

CC: Mr. Ralph Gill
Mr. William Ashley

Response to Comments by Mr. James H. Gilbert

1. The cost of an outfall for each alternative (A-2 - A-5) was calculated as indicated on Tables 17, 18, 19, 20, 21 and 22.

2. Based upon the physiography of the river, the deepest reliable channel is near the proposed outfall for A-5 along the Department of Game and Fish's diked area.

3. The estimated cost for the Alternative outfall is as follows:

A-2	$760,000
A-3	760,000
A-4	869,000
A-5	512,000

   including engineering administration, contingencies, and escalation.

4. A stabilization pond will generate some odors, but it would be impossible to predict just how far the wind could carry these on a given day.

NC

Byron Jenkins
Box 597
Jackson, Wyoming 83001

July 1 1977

Mr John A Green
Regional Administrator
Environmentl Protection Agency
Denver Colorado

Dear Mr Green -

I have attended the meeting regarding the proposed wastewater treatment system for the town of Jackson.

I have been a resident here since May 1938.

In my opinion the treatment plant, (preferably) a mechanical plant, should be located where it will do the most good and that is at the lower end of south Park - near the Polo grounds.

It would pick up all the new developement via gravity flow.

One plant is much more desirer then 500 or more Septic tanks.

Most people dont need [illegible] ceptic systems any how and with the porous sub soil here all goes toward poluting our wells and every one who has a home out of town has to have a well at least 50'd

The water table is lower than that at Boyles hill which is near the surface as any one can see and sub water is cold.

lets have a system that will service us for a long time to come rather that have to relocate ten years from now.

Yours truly

Byron Jenkins

Response to Comments by Byron Jenkins

1. The approval of the Flat Creek interceptor route and the Lower Bench treatment facility site meets the objective of providing a long term solution to Jackson's wastewater treatment problems. Out-of-city hook-up priorities and annual rates will be determined by the Town of Jackson and Teton County prior to the plant becoming fully operational. Groundwater monitoring requirements identified in the final EIS will be imposed to ensure that groundwater quality at the Lower Bench site is not being degraded.